

CHAPTER THREE

INDIVIDUAL SPACE CRITERIA

Section I. SITE DEVELOPMENT

3-1. Site work.

a. The standard facility consists of the training building, the organizational maintenance shop (OMS) with military equipment parking (MEP) area and the privately owned vehicle (POV) parking area. The inter-relationship of these spaces and their appropriate site orientation require careful study. As the major point of activity and public access, the training center building dominates the community interface of the entire facility and must be visible from adjacent public areas. The MEP and OMS also must be located near the training center building for economical accessibility and to afford a showcase for public relations purposes.

b. Site access must be direct, safe and efficient to minimize the environmental impact of military vehicle traffic. The design should minimize access points but provide adequate acceleration and deceleration lanes at the entrances. Standard traffic planning practices will be adhered to. Access and paving material may be concrete or asphaltic concrete. Curb and gutter improvements will only be provided for erosion control or other safety requirements. Sidewalks will be provided from POV parking areas to the building entrances. Keep POV and military traffic separated.

c. Security lighting will be provided in the MEP and at training building entrances. Lighting will not be provided in the POV area, unless justified on the basis of high crime security. The MEP illumination level will be 2 foot-candles with a minimum intensity of .04 footcandles.

d. Wash platforms will be designed to collect and pretreat all runoff prior to discharge into a central sewerage system. Pretreatment facilities for runoff usually consist of a sand trap and grease/oil interceptor; however, the degree of pretreatment will be determined by the project location and environmental requirements of the federal, state and local government. User requirements and local factors such as vehicle types and frequency of use, regional soil characteristics, maximum water flow during washing, and the resources available to clean and maintain sand traps and grease/oil interceptors will also be considered. Ease of maintenance will be a prime consideration in the design of a wash platform. The use of high pressure, low volume cleaning equipment is highly recommended, because it greatly reduces the amount of runoff to be treated and therefore simplifies the design of the wash platform and pretreatment facilities.

e. Maximum use of existing site features will be made to enhance the aesthetics of the building as well as minimize the cost of earthwork and landscaping when compatible with the functional requirements of the new site development. Where necessary, additional low maintenance landscape planting should be provided to supplement the existing site features and enhance the

attractiveness of the project. Existing soils will be conditioned for seeding by the use of additives in lieu of bringing in topsoil from off-site sources. Hydroseeding may be permitted. Sodding will be provided only on areas subject to erosion. Careful evaluation of all natural and man-made features on the site will be made to determine whether retention or demolition of the existing features is more economical. Consideration of the possible future needs for expansion will also be included in this cost evaluation.

f. Provisions for future expansion must be designed into each project, especially new centers. In the training center buildings, expansion will primarily consist of administrative, classroom and unit storage spaces. The OMS will be sited to allow for the construction of additional work bays. MEP and POV areas will be sited to accommodate increased parking requirements associated with increases in personnel and equipment.

g. In addition to minimizing the length of utility lines to reduce construction cost, efforts should be made to locate lines to provide easy access for future maintenance and expansion. The utility lines should also be sited to prevent damage by vehicles and personnel and to avoid any adverse effect upon the facility's aesthetics or that of the surrounding neighborhood. The utilities must be designed with the requirements of the total complex in mind to ensure a complete system which can operate as an independent unit dealing directly with the municipal utility companies.

h. It is important that the site development blend into its surroundings in such a way that it becomes an asset to the community. An attractive, well organized facility can gain acceptance and cooperation from the local neighborhood and businesses. The use of trees and vegetation not only provides beauty, shade and protection, but also provides a screen to blend equipment parks, maintenance areas and POV parking areas into the surroundings, resulting in a more compatible and attractive facility.

Section II. TRAINING CENTER BUILDING

3-2. Circulation.

a. Lobby.

(1) Function. The lobby provides an entry way and reception area for unit personnel and visitors. It is one of the first image-makers provided and should reflect feelings of pride and commitment characteristic of the U.S. Army Reserve.

(2) General design requirements.

(a) As the primary public entrance to the training center building, the entry must be readily identifiable from the parking lot and pedestrian access routes (Figure 3-1). The lobby must be adjacent to a permanently staffed office since there is no receptionist. The design should provide an ordered, warm, friendly invitation to the public (Figure 3-2).

(b) Functional parameters include clearances to accommodate circulation, traffic patterns and space for standing. The entrance should have an adequate exterior overhang or vestibule. Maximum body width and breadth (generally a 24-inch by 24-inch area) is a key module for designing this space.

(c) Graphic displays, such as units' plaques, trophies and awards, should be placed in a visually prominent location.

(d) Acoustical ceilings will be installed with hold-down clips in vestibules and entry areas where a change in air pressure might cause the tiles to move.

(e) Provide entrance ramp for handicapped access.

(3) Equipment. Furnishings will be determined by the individual unit. Seating will not be provided.

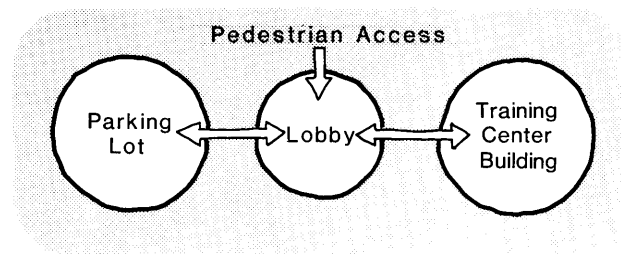


Figure 3-1. Lobby adjacency diagram.

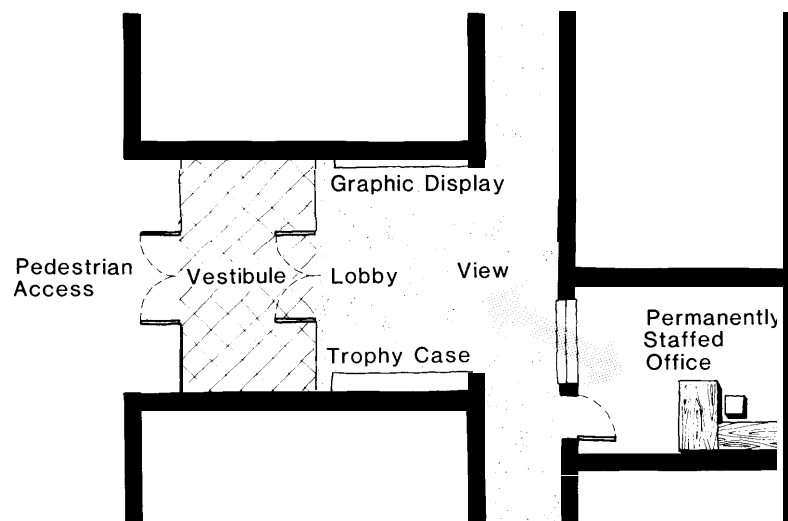


Figure 3-2. Lobby plan.

b. Corridor.

(1) Function. The corridor is an interior passageway providing access and egress within the building.

(2) General design requirements.

(a) The standard clear width will be 6 feet for major circulation corridors. Secondary corridors may be reduced to 5 feet. Corridors should provide a double lane clearance that allows two people abreast to circulate comfortably without body contact.

(b) Corridors will be planned to be a maximum of 150 feet straight in one direction. Consider changing corridor direction and providing views to adjacent spaces or an exterior scene. Permanent wall mounted fixtures such as drinking fountains or fire extinguishers must not project into the corridor (Figure 3-3).

(c) Exit lighting should be wall-mounted rather than suspended from the ceiling whenever possible.

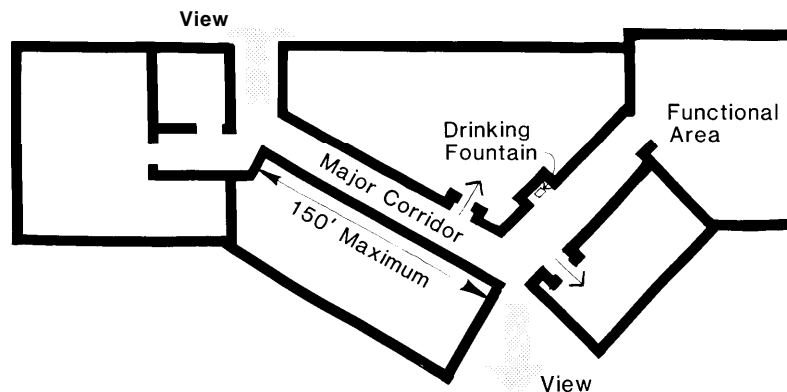


Figure 3-3. Corridor plan.

(3) Equipment. One wall mounted drinking fountain for every 100 persons will be provided.

3-3. Administrative areas.

a. Administrative offices.

(1) Function. The administrative offices are divided into two specific categories-- daily administration by permanent personnel and periodic administration by Army Reserve personnel consisting of exclusive use and common use areas.

(2) General design requirements.

(a) As illustrated in figure 3-4, the exclusive use and common use spaces should be planned in a doughnut shape with the common use space approximately 1500-2000 square feet, surrounded by exclusive use space. If a larger multi-purpose space is required, it is better to provide an additional doughnut shape rather than to provide a single larger common use space greater than the 1500 square feet minimum dimension. Communication outlets and power receptacles should be primarily located on the perimeter walls. Floor outlets will not be used.

(b) Permanent personnel must be located adjacent to the main entrance of the building for visual control of visitors (Figure 3-5). A viewing window, such as a sidelight or full light in the door, will be provided for a view of the entrance from both a standing and seated position. The size of the glass will be in accordance with applicable safety codes.

(c) The design of the exclusive use and common use space should take into consideration the size and quantity of desks and other furnishings to be used as well as the primary and secondary circulation space required (Figures 3-6 and 3-7). Planning concepts should maximize the efficiency of space utilization.

(3) Equipment.

(a) Exclusive use space will be furnished under a separate contract, with a worksurface or desk, shelving, filing, a small conference table, one desk chair and two guest chairs. All chairs in these offices will be on casters for ease of movement.

(b) The common use space will be equipped, under a separate contract, with moveable desks and seating. Desk sizes and shapes will be determined by equipment requirements, for example, a secondary surface will be provided for typewriters when necessary. Exact equipment and storage requirements will be verified by the Design Agency.

(4) References. Refer to 3-3h, Computer equipment.

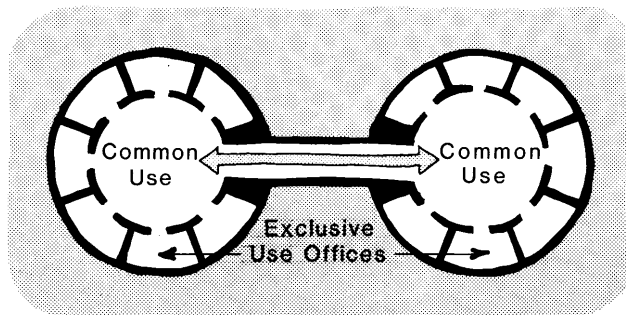


Figure 3-4. Exclusive use and common use doughnut shape.

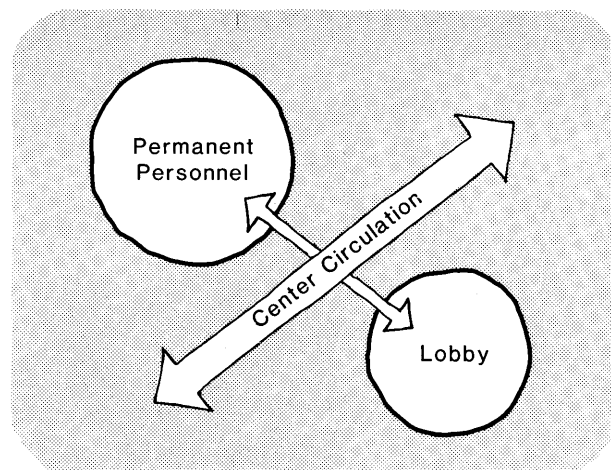


Figure 3-5. Permanent personnel adjacency diagram.

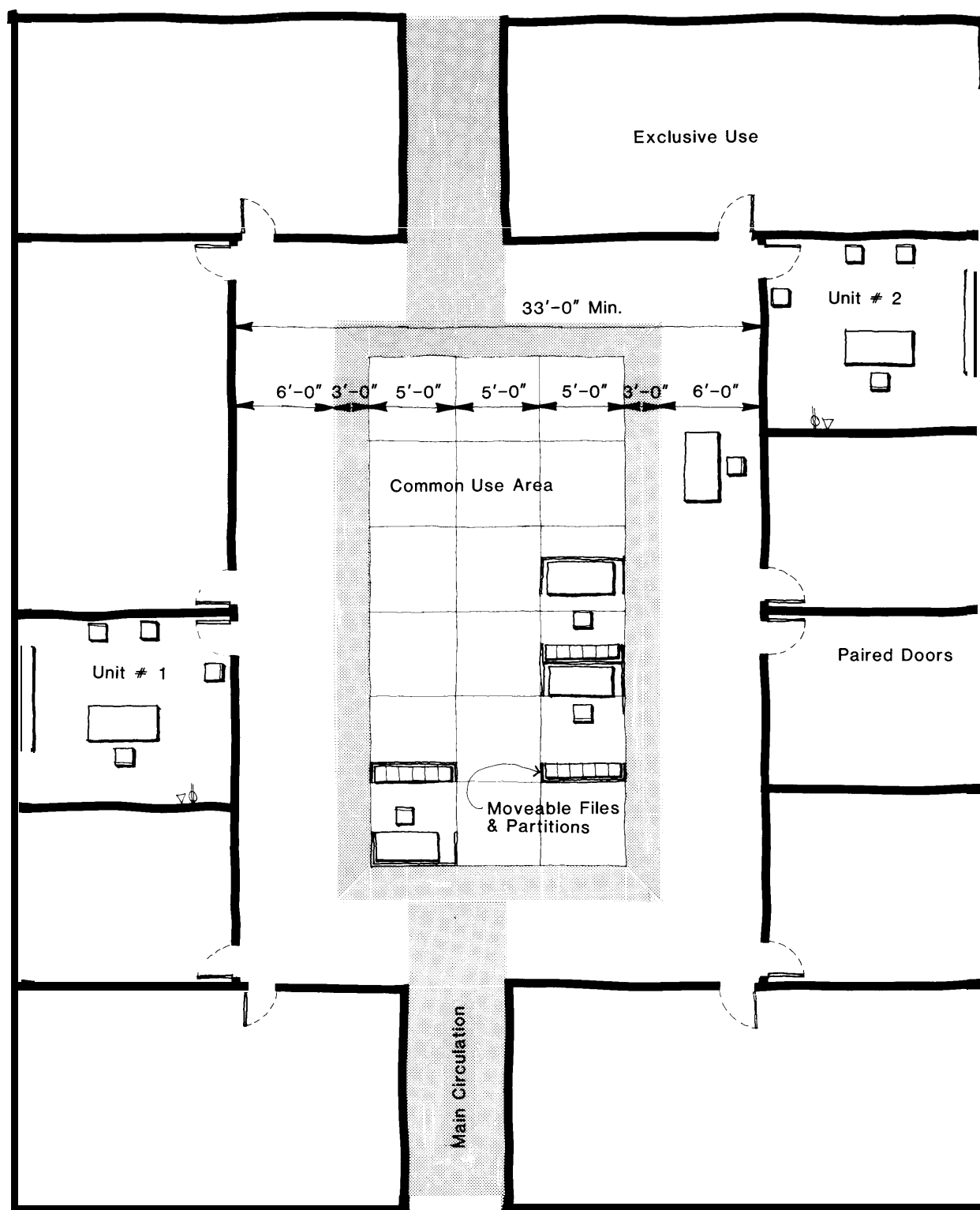


Figure 3-6. Common use plan.

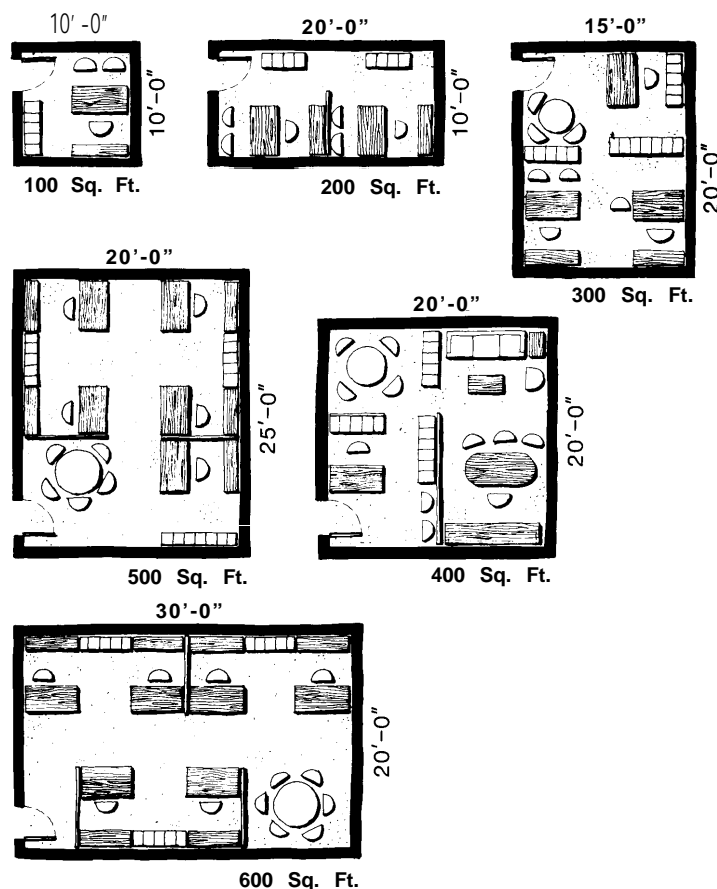


Figure 3-7. Exclusive use plans.

b. Retention office

(1) Function. This space is for permanently assigned personnel and is used primarily for administrative purposes. This space is also where potential members and re-enlistees are interviewed. The retention office must be easy to locate and adjacent to the main entrance (Figure 3-8). This space is shared by all assigned units.

(2) General design requirements. An office large enough to accommodate two full time personnel will be provided. Glazed panels (door or sidelight) may be used to emphasize public accessibility (Figure 3-9).

(3) Equipment. Moveable furnishings will be provided under a separate contract and include two primary worksurfaces and one or two conference tables as required. In some cases, personnel can share a table for meeting purposes. The worksurface area will include space for filing and shelving.

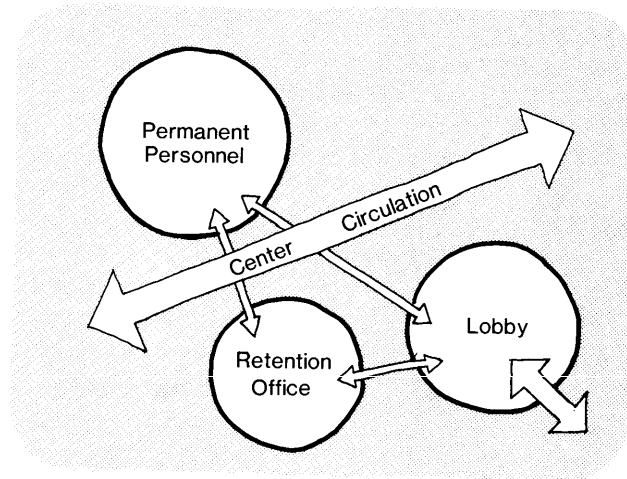


Figure 3-8. Retention office adjacency diagram.

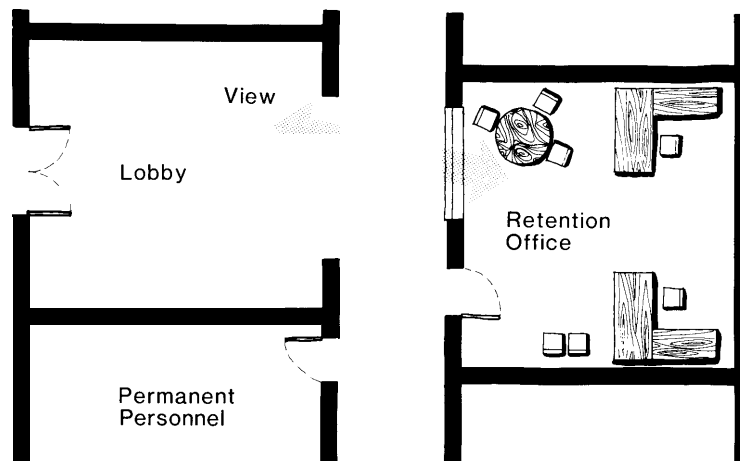


Figure 3-9. Retention office plan.

c. Conference.

(1) Function. This space is used for meetings by the Commanding General and/or staff within the general office or headquarters; it is not provided for every facility.

(2) General design requirements. The design for this space should accommodate twenty people and should be adjacent to the Commander's office and permanent administration space (Figure 3-10).

(3) Equipment. Tables and seating for twenty people will be provided by others. Tables will be modular to allow for reconfiguration as needed. The actual dimensions of a conference table are a function of the number of

people to be seated (Figure 3-11). Generally, 30 inches per person constitutes a comfortable perimeter allocation. Tables to seat as many as twenty people may take on a "U" shape in an effort to reduce distances between people at opposite ends of the table and to economize on space utilization. These dimensions are not only important in establishing appropriate work zones but are essential in providing optimum sight lines when the room also incorporates an audio-visual wall. Spacing of people should minimize obstruction of sight lines. Clearances around the table for circulation should accommodate the maximum body breadth of the person seated and the space taken up by the chair itself. This seating zone varies from 18 inches to 36 inches. Therefore, the total dimension from table to wall or other obstruction, is between 48 inches and 60 inches. Distance from an audio-visual wall must be a minimum of 72 inches. Writing surfaces and tackable surfaces will be provided by the contractor.

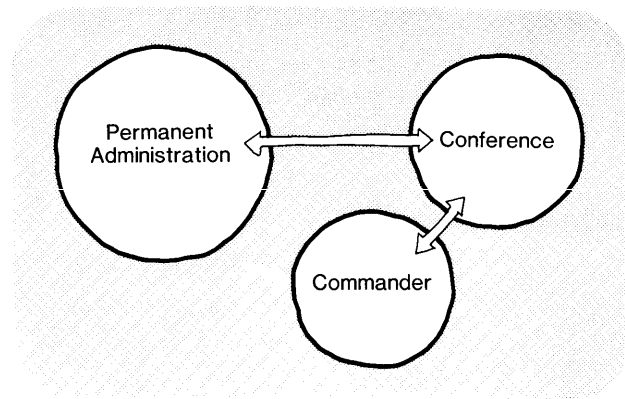


Figure 3-10. Conference adjacency diagram.

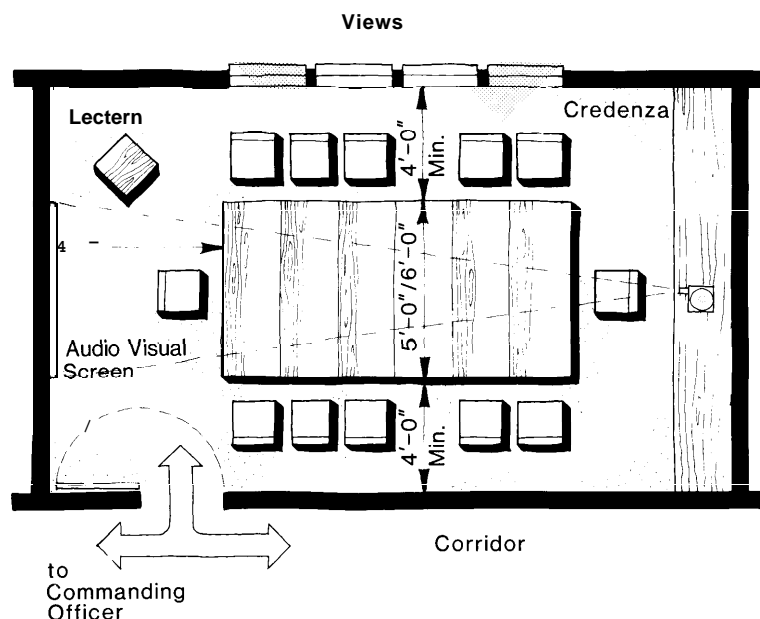


Figure 3-11. Conference plan.

d. Message center.

(1) Function. The message center is the point for receipt and distribution of all inter- and intra-office correspondence. This space will not be staffed full time, but will provide a sorting and mail pickup area.

(2) General design requirements. The message center should be located adjacent to the administrative staff areas and close to the lobby (Figure 3-12). The message center should be enclosed and equipped with a lockable door and be rectangular in shape to maximize wall space. A pass-through window or dutch door will be provided to the corridor (Figure 3-13).

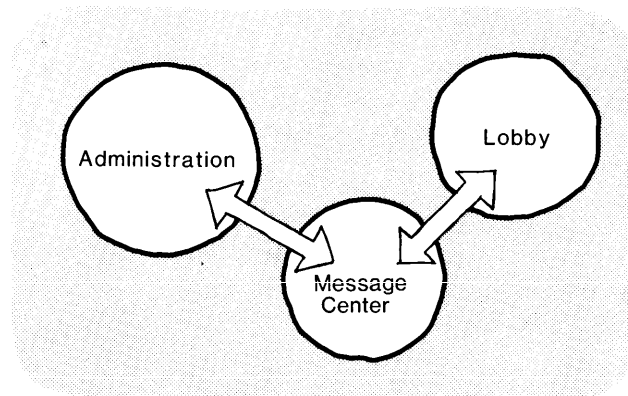


Figure 3-12. Message center adjacency diagram.

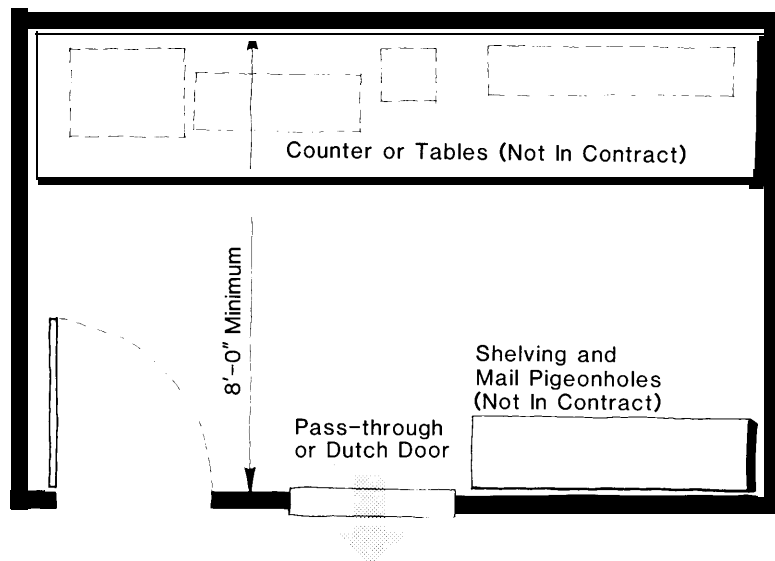


Figure 3-13. Message center plan.

(3) Equipment. The design should provide a worksurface for sorting and collating and pigeon holes for mail distribution. The number of bins will be determined by the size of the facility and number of units to be accommodated. Provide through-the-wall boxes.

e. Reproduction.

(1) Function. This space provides for the reproduction of administrative correspondence, bulletins, orders, etc. In some cases, the space also houses hard copy printers connected to word or data processing units in the office space. Diazo reproduction is not included.

(2) General design requirements. The reproduction space should be located adjacent to the administration space (Figure 3-14). The space must be large enough to accommodate a high-speed copier, a work table for collating and binding and sufficient storage for paper, toner, ink, etc. A small amount of storage should also be provided for office supplies and forms. The size of this area will be relative to the size of the unit and specific reproduction requirements (Figure 3-15).

(3) Equipment. A high speed copier will be provided by others. Table top equipment includes such items as a paper cutter and a variety of staplers. This equipment, as well as hard copy printers, will be outlined in the facilities' program.

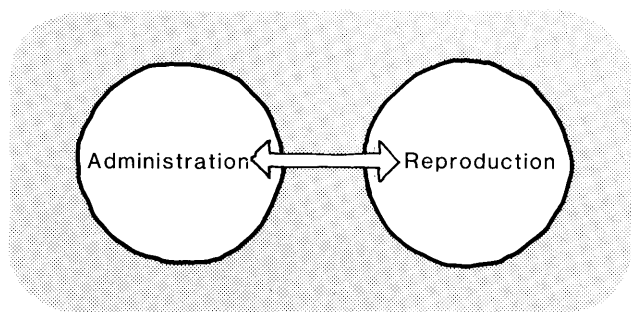


Figure 3-14. Reproduction adjacency diagram.

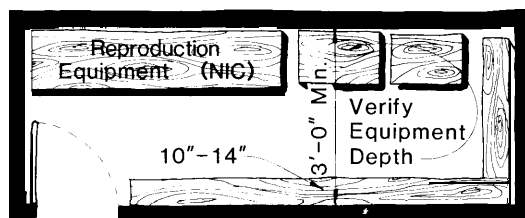


Figure 3-15. Reproduction plan.

f. Drafting.

(1) Function. This space is provided for drafting operations and instruction.

(2) General design requirements. The drafting space does not require adjacency to any specific area. However, the drafting space should not be located adjacent to noisy spaces such as the assembly hall, rifle range, etc. (Figure 3-16). The design should accommodate four workstations (Figure 3-17).

3) Equipment. Workstations will be provided by others. Each should be planned to accommodate a drawing board 6 feet long by 3 feet wide and a layout surface approximately 3 feet wide by 6 feet to 7 feet long. Each space should include storage for drawing supplies. Flat file drawers, hanging racks for drawing storage and shelving for reference manuals should also be provided. Reproduction equipment may require ventilation.

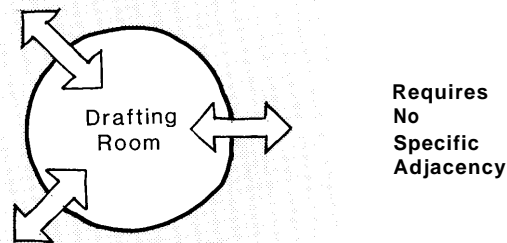


Figure 3-16. Drafting adjacency diagram.

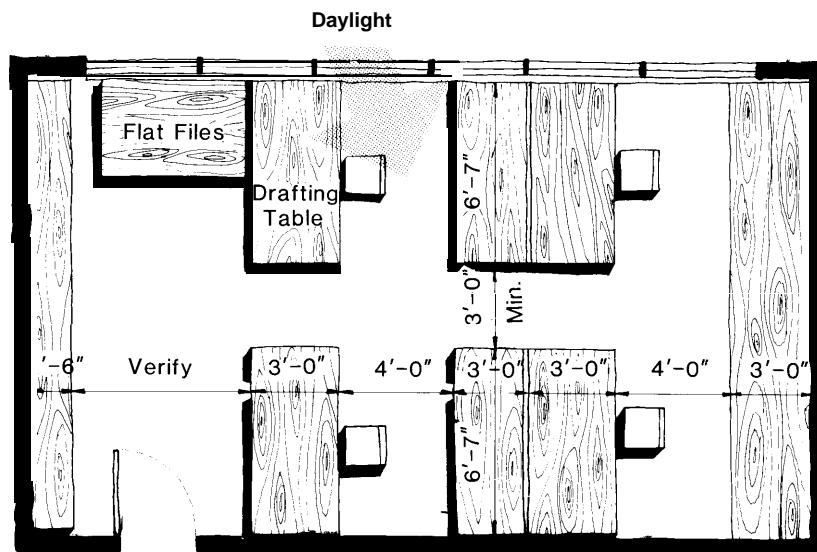


Figure 3-17. Drafting plan.

g. Communications.

(1) Function. This space provides storage area for sensitive communica-

tion devices. However, a security safe may be substituted and placed within one of the classrooms.

(2) General design requirements. If a safe is placed in one of the classrooms, then the classroom design must provide sufficient space surrounding the safe for circulation and door operation. The safe must be offset from the wall 12 inches in order to open on two sides and swivel, thus requiring a slight increase in floor space. The door to the classroom must be lockable and without glazing (Figure 3-18). If the communications space is not incorporated in a classroom, then the space must be secure against surreptitious entry.

(3) Equipment. The only equipment involved is the safe, which will be provided by the Using Service. There are no structural considerations for this piece of equipment. One hundred pounds per square foot capacity is sufficient.

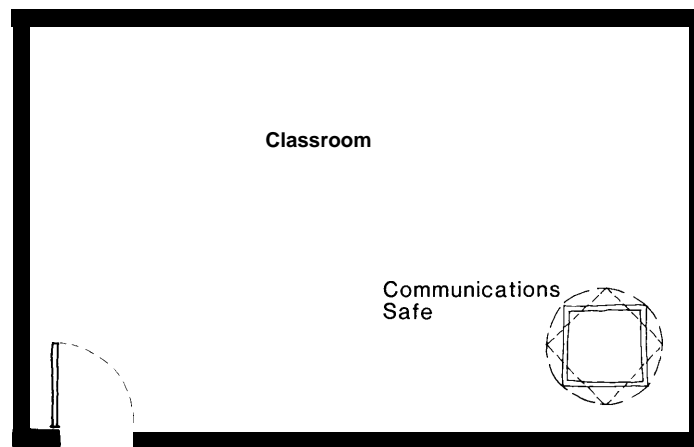


Figure 3-18. Communications plan.

h. Computer equipment.

(1) Function. Generally, the computer equipment will not require a separate space. The trend in the future will be towards locating this type of equipment in a decentralized manner; rather than providing the traditional computer room, equipment should be located with the users in the general office space with connections via communications cabling.

(2) General design requirements. Space should be provided to accommodate specific data and word processing functions as outlined in the program. The appropriate type of worksurfaces and their space requirements will be dictated by the equipment. Occasionally, printers may be remotely located in the reproduction area for acoustical reasons. Locations should be verified with the Using Service.

(3) Equipment. Types of equipment that are generally found in an office space are word and data processing terminals with keyboards, hard copy printers, personal computers, modems, control units and disk drive units. These may vary in shape, size and quantity, depending on the manufacturer and

the specific function required (Figure 3-19). The equipment needs will be included in the facilities' program.

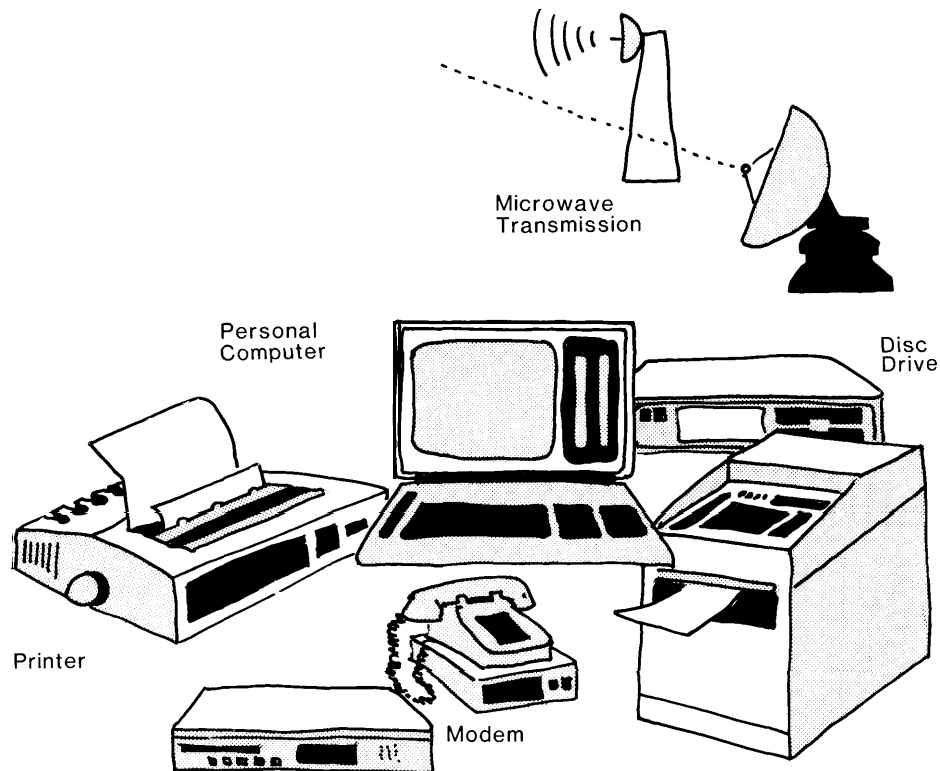


Figure 3-19. Computer equipment.

3-4. Classroom areas.

a. Classrooms

(1) Function. This space is used for instructional training of unit personnel.

(2) General design requirements. Classrooms should be located close to an outside entrance for easy access without going through the administrative area (Figure 3-20). Typically, 30 to 40 person classrooms will be provided at 20 square feet per person, with the rooms subdivisible by a moveable partition (Figure 3-21).

(3) Equipment. Provide a moveable partition with a minimum sound rating of 40 STC in classrooms to be subdivided. Acoustical treatment (sound attenuation blankets and acoustical sealant) should be provided above the ceiling at the folding partitions to attain a minimum of 40 STC and to eliminate all flanking paths. Each room should be provided with a chalkboard 8 feet wide by 4 feet high, mounted 3 feet from the floor. An additional chalkboard should be provided in the classrooms divided by folding partitions. Room darkening

shades or blinds should be provided for classrooms with windows. An additional lightswitch at the chalkboard location should be provided. Classrooms will be furnished by others with instructional type tables approximately 2 feet 4 inches wide by 6 feet long. Chairs should be stackable for ease of storage. An alternate plan could incorporate traditional desk-type seating (chairs with tablet arms).

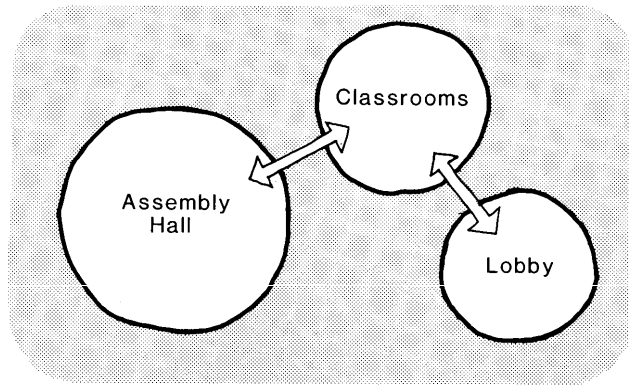


Figure 3-20. Classroom adjacency diagram.

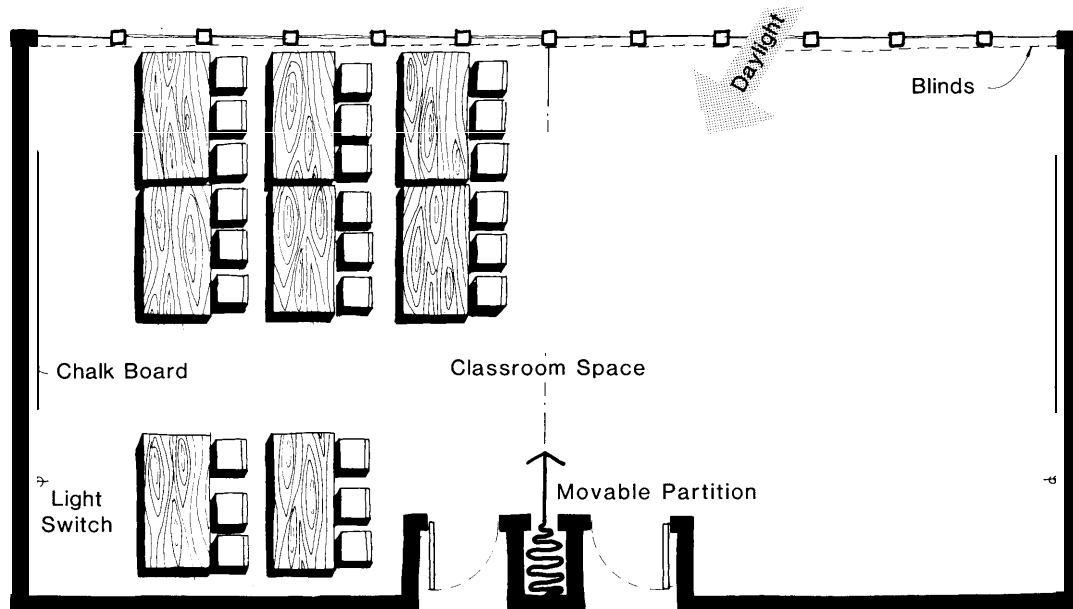


Figure 3-21. Classroom plan.

b. Learning center.

(1) Function. The learning center is a training area equipped with individual study carrels for military occupational specialty (MOS) training.

(2) General design requirements. The learning center should be adjacent to or combined with the library/classroom as required (Figure 3-22). Electrical outlets for audio/visual training equipment should be provided adjacent to the carrel.

(3) Equipment. The learning center function requires carrels equipped with audio visual training devices. Carrels will be free standing and will be provided and installed by the using service. The typical carrel size is 4 feet wide by 2 feet 6 inches deep. However, the actual dimension will reflect the equipment sizes outlined in the program.

c. Library/classroom.

(1) Function. The library/classroom accommodates training publications, reading material, a reading area and a small conference classroom for instructional training.

(2) General design requirements. This space may be combined with the learning center and should be adjacent to the other classroom areas (Figure 3-23). The configuration of this space will be based on a 3-foot book stack module. The typical corridor width between book stacks is also 3 feet.

(3) Equipment. The learning center will be provided by others with moveable book stacks, study table(s) and chairs, a small card index, dictionary stand and a map case. Quantities of books to be stored will be verified by the Design Agency. The conference/classroom shall be provided with one table to

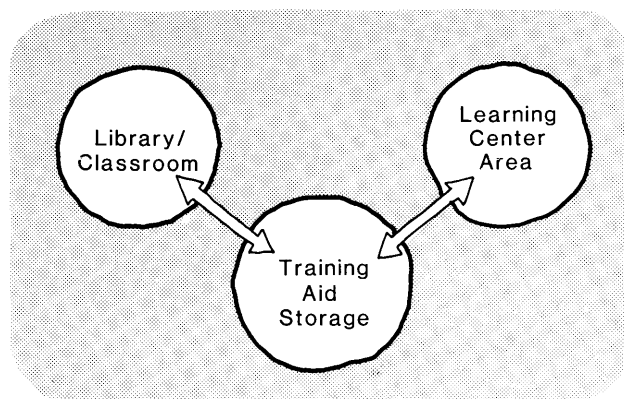


Figure 3-22. Learning center and library/classrooms adjacency diagram.

seat 6 people and a surface mounted combination chalkboard and tackboard, 8 feet wide by 4 feet high, mounted 3 feet above the floor.

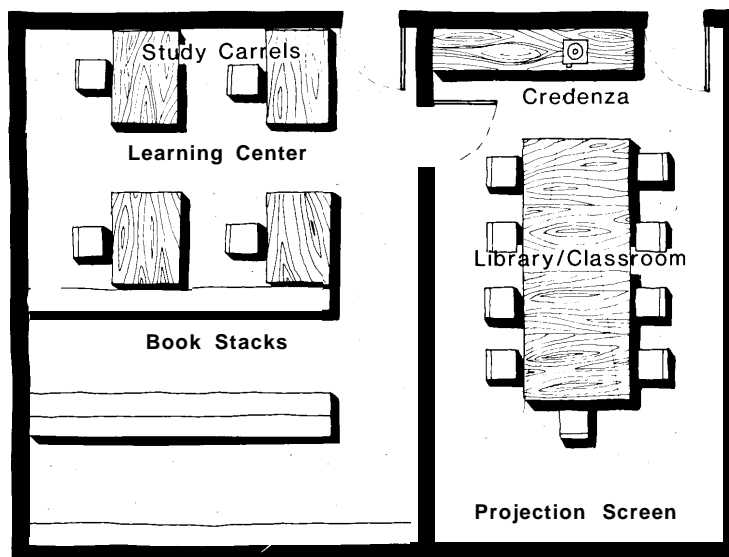


Figure 3-23. Learning center and library/classroom plan.

d. Training aid storage.

(1) Function. This space provides for the storage of graphic training aids, models and training materials.

(2) General design requirements. Training aid storage should be located adjacent to the library/classroom and learning center. The desired configuration for this space is rectangular in order to maximize wall space.

(3) Equipment. Metal shelving will be sized according to materials to be stored and will be outlined in the program. For instance, small projectors may require only an 18-inch deep shelf, whereas large models may require shelves that are 36 inches deep, with a clearance of 20 inches.

3-5. Assembly areas.

a. Assembly hall.

(1) Function. The assembly hall provides space for troop formations, maintenance of equipment, personnel assemblies, food service seating and large group assemblies for instructional training.

(2) General design requirements. The assembly hall should be directly adjacent to the kitchen and food storage space, as well as the unit supply, chair storage and the administrative and classroom space (Figure 3-24). Ceiling height should be 10 feet above slab. Consider utilizing the assembly hall as a shared usage space adjacent to the administration and classroom spaces (Figure 3-25).

(3) Equipment. Moveable furnishings may be stored in adjacent areas or located in the assembly hall as appropriate.

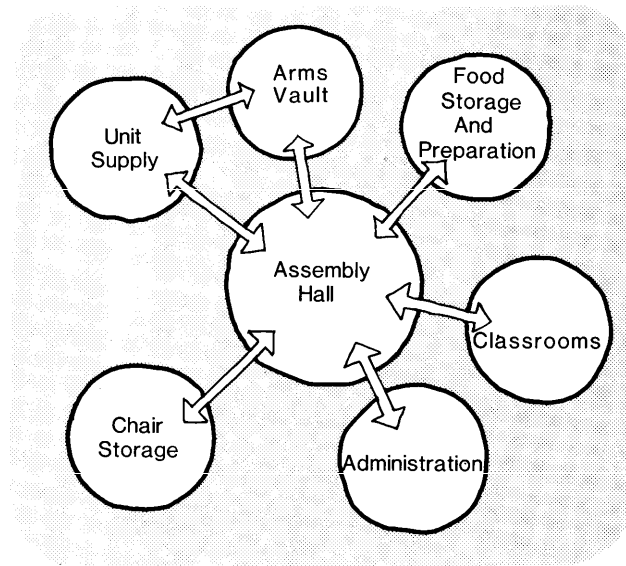


Figure 3-24. Assembly hall adjacency diagram.

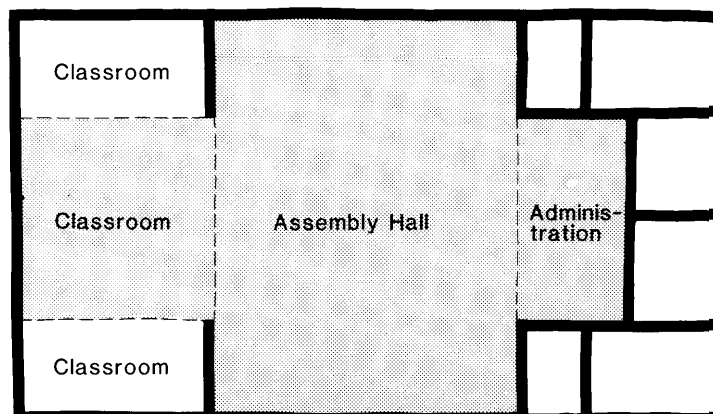


Figure 3-25. Assembly hall plan.

b. Chair storage.

(1) Function. This space is for storage of chairs and tables.

(2) General design requirements. Chair storage space may be a part of the assembly hall or be a separate room opening onto the assembly hall (Figure 3-26). The storage space must be kept clear of mechanical equipment and electrical panels.

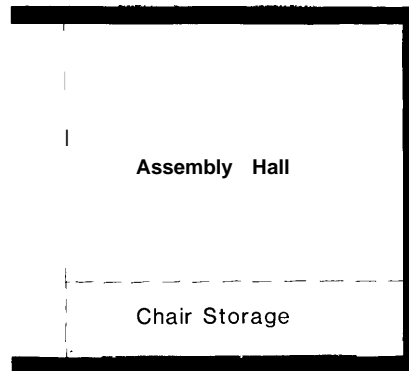


Figure 3-26. Maintenance and chair storage plan.

c. Food Preparation

(1) Function. This space is used to clean, prepare, cook and serve the food held in the food storage area. All menu items will be served by means of a counter extending through the common wall of the assembly/dining hall. There will be a maximum of five cooks and one supervisor within this area (Figure 3-27).

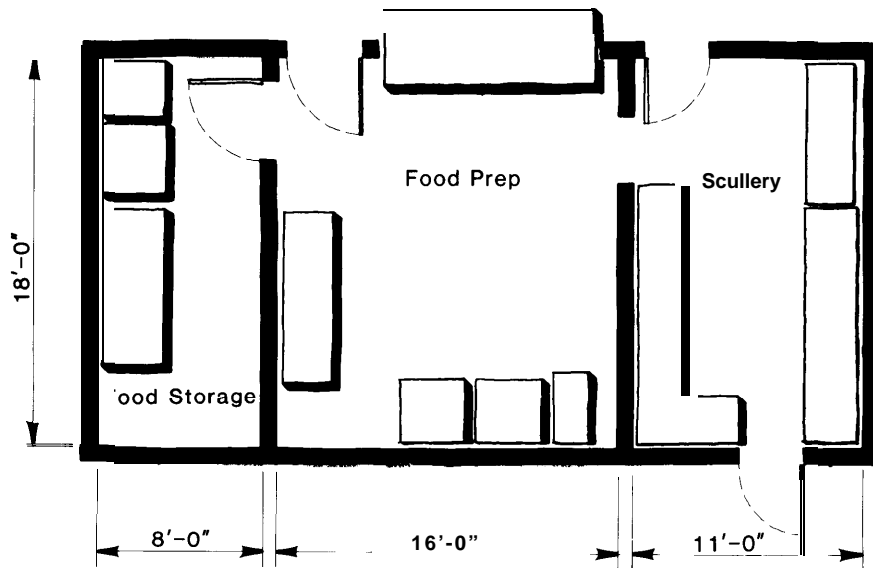


Figure 3-27. Schematic food preparation, storage and scullery plan.

(2) General design requirements. The size and shape will be determined by the location of the equipment items required for preparing the meals. Other requirements are aisle space between equipment of 3 feet, a 42-inch by 86-inch door to both the food storage area and the assembly/dining hall, an opening into the dishwashing room and an 8-foot wide opening with a one hour fire rated roll-up steel door at the serving line. An exhaust hood will be provided over the cooking equipment. Untempered air hoods will be properly factory insulated to prevent condensation. The food preparation area, with adjacent food storage and scullery, must be separated, as a single enclosure from all other spaces, by one-hour, fire resistant, rated construction. In addition, the hoods, cooking surfaces and ducts must have automatic fire extinguishing systems.

(3) Equipment. The equipment listed in Table 3-1, shall be provided.

d. Food storage.

(1) Function. This space is used to store and secure all fresh, frozen and canned food items which are issued to the food preparation. Ice making machines may also be located within this area. A maximum of two food service personnel will be the only persons allowed within this space.

(2) General design requirements.

(a) The size and shape will be determined by the position of the food preparation and the equipment stored within the room. Basic criteria consist of a minimum 3-foot aisle and an 42-inch by 86-inch door which

can swing a full 180 degrees and be operable from inside when locked from the food preparation side. No door from the outside to the food storage room will be provided. The storage room should open directly into the food preparation side.

(b) Other special requirements include quarry tile (abrasive finish) floors, glazed masonry unit walls (ceramic tile or epoxy painted CMU with filler) and glazed masonry unit (quarry tile or ceramic tile) base. The ceiling should be plaster or moisture resistant gypsum board, epoxy painted.

(c) Provide adequate exhaust and intake to allow dissipation of heat build up from refrigeration equipment. The food storage area with adjacent food preparation area and scullery must be separated as a single enclosure from all other spaces by one-hour, fire resistant rated construction.

(3) Equipment. The equipment listed in Table 3-1 will be provided.

e. Scullery.

(1) Function. The scullery is used to clean all utensils, pots, dishes, trays and silverware and to store them after use. It should have at least one exterior wall and be adjacent to the food preparation. Two to four persons will be required to work in the scullery.

(2) General design requirements. The size and shape will be determined by the location of the equipment as well as the doorway to the outside and the entrance to the food preparation area. Other requirements are a minimum 3-foot aisle between equipment, a 42-inch wide exterior door and a 3-foot wide door to the assembly/dining hall. The scullery, with adjacent food preparation and food storage, must be separated as a single enclosure from all other spaces by one-hour, fire resistant rated construction. The waste water from the dishwasher and pot sinks will be routed through grease interceptors unless prohibited by local codes. The garbage disposal line should not run through the grease interceptors. The grease interceptors should be flush mounted with the floor and located in the dishwashing area. Inaccessible locations should be avoided as accessibility for cleaning is needed.

(3) Equipment. The equipment listed in Table 3-1, will be provided.

TABLE 3-1. Equipment List*

<u>ITEM #</u>	<u>DESCRIPTION</u>
1.	Tableware dispenser
2.	Mobile tray rack
3.	Silverware dispenser
4.	Coffee maker
5.	Tray bussing rack
6.	Wall-mounted shelf
✓ 7.	Clean dishtable
✓ 8.	Soiled dishtable
✓ 9.	Dishwashing machine
✓ 10.	Garbage disposal machine
✓ 11.	Exhaust hood for dishwashing machine. Note: Consider eliminating exhaust over dishwasher by using sanitizing solution in water thus using lower temperature water.
✓ 12.	Pump unit for silverware pre-wash
✓ 13.	Pre-rinse spray assembly
✓ 14.	Pre-rinse spray
✓ 15.	Pots & pans sink
✓ 16.	Garbage disposal machine
✓ 17.	Condensate sink exhaust hood
✓ 18.	Booster heater - sanitizing sink
✓ 19.	Booster heater - pots & pans sink
✓ 20.	Cold food counter
✓ 21.	Hot food table
22.	Mixer bowls storage rack
23.	Deep fat fryer
✓ 24.	Griddle top range
✓ 25.	Burner top range
✓ 26.	Range exhaust hood
27.	Vegetable peeling machine
28.	Vegetable preparation sink
29.	Mixing machine
30.	Mixer stand
31.	Mobile food preparation sink
32.	Can opener
33.	Meat slicing machine
✓ 34.	Frozen food cabinet
✓ 35.	Ice making machine
36.	Mobile storage shelving
✓ 37.	Refrigerator

Are Needed ✓

*See Figure 3-28 for location of equipment.

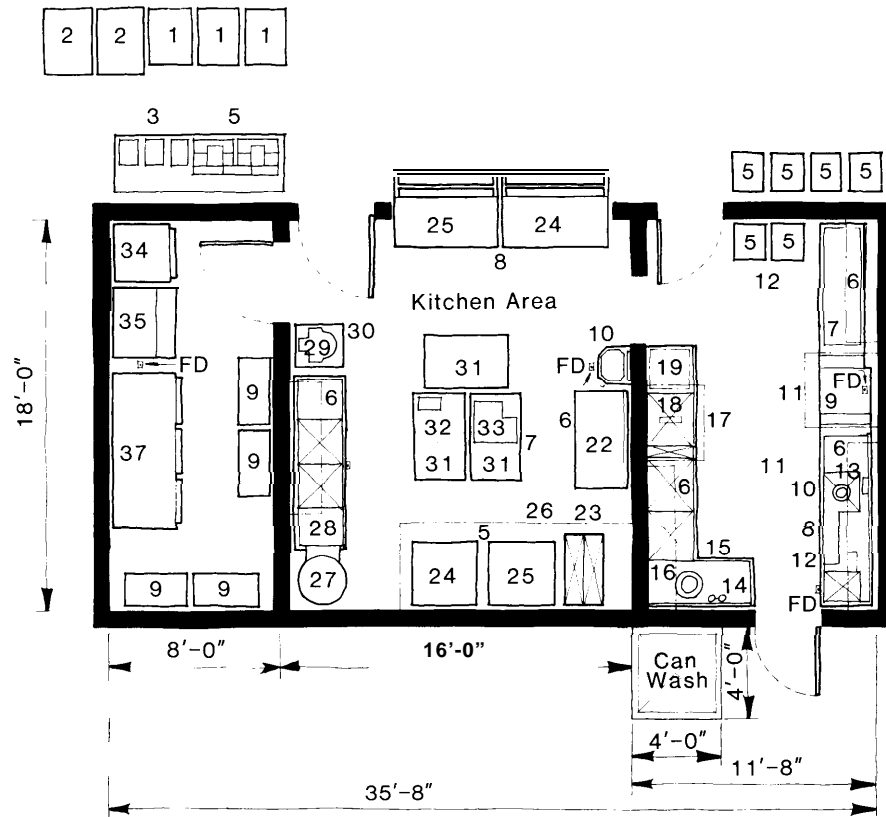


Figure 3-28. Food preparation, storage and scullery equipment plan.

3-6. Unit storage areas.

a. Unit Storage.

(1) Function. This space permits inventory management of organizational equipment (i.e., tents, radio, tool sets, etc.) in a separate and secure area. The issue and return of organization clothing and equipment is conducted from this space.

(2) General design requirements. The unit storage space should connect with the assembly hall. The space will be subdivided into 8-foot by 12-foot cages constructed of woven welded wire fabric. Caging should be installed from the floor to the roof deck or floor slab above. Where this is impractical, provide woven welded wire fabric ceilings. Aisles and vestibules between the secured areas should be kept to a minimum. Circulation space is not included within the total authorized net square footage. This space should be one-hour rated construction (Figures 3-29 and 3-30).

(3) Equipment.

(a) Wire caging on a 4 foot module as required. Partitions will be 10-gauge steel-wire panels, woven into 1-1/2 by 1/8 inch channels. Provide framing at pipes, ducts and other obstructions running through the partition. Shelving, 2 feet wide, should be provided on two walls.

b. Lockers.

(1) Function. Space for wall lockers is used by the reservists for storage of organizational clothing and equipment.

(2) General design requirements. Wall lockers will be placed in unit storage cages.

(3) Equipment. Metal wall lockers will be half-size, double tiered, 18 inches wide by 18 inches deep by 36 inches high.

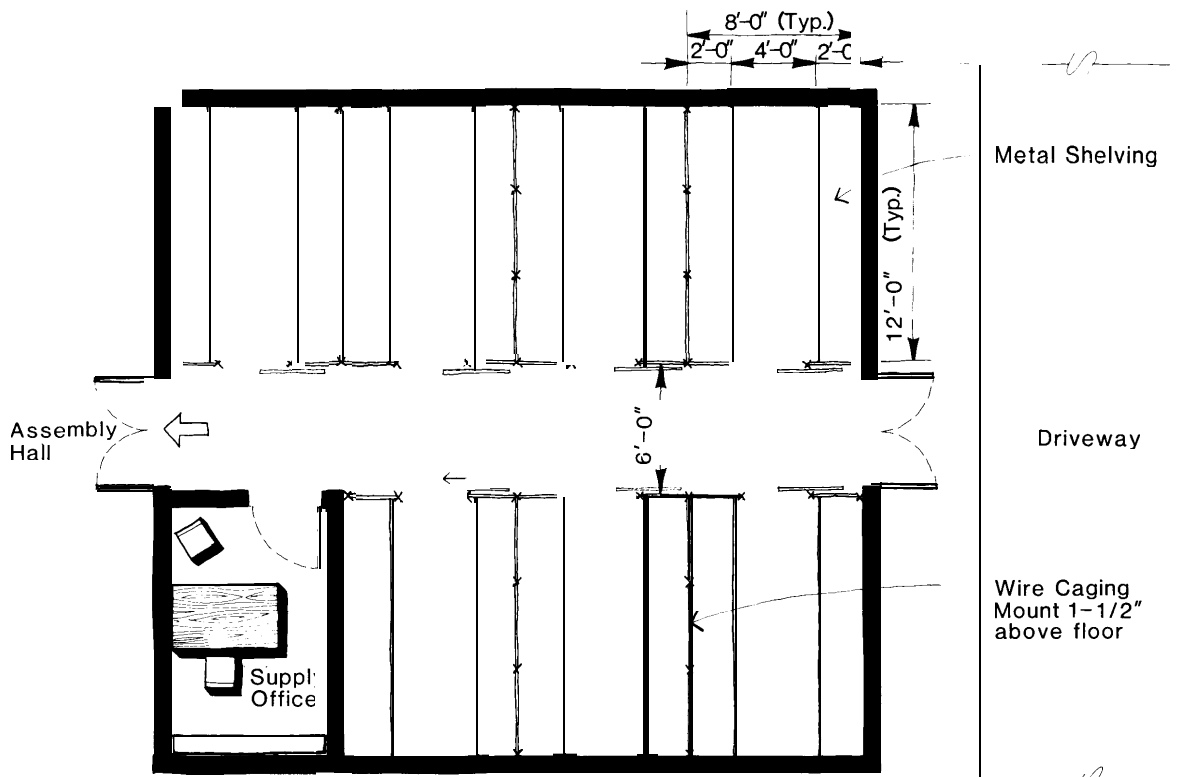


Figure 3-29. Unit storage plan.

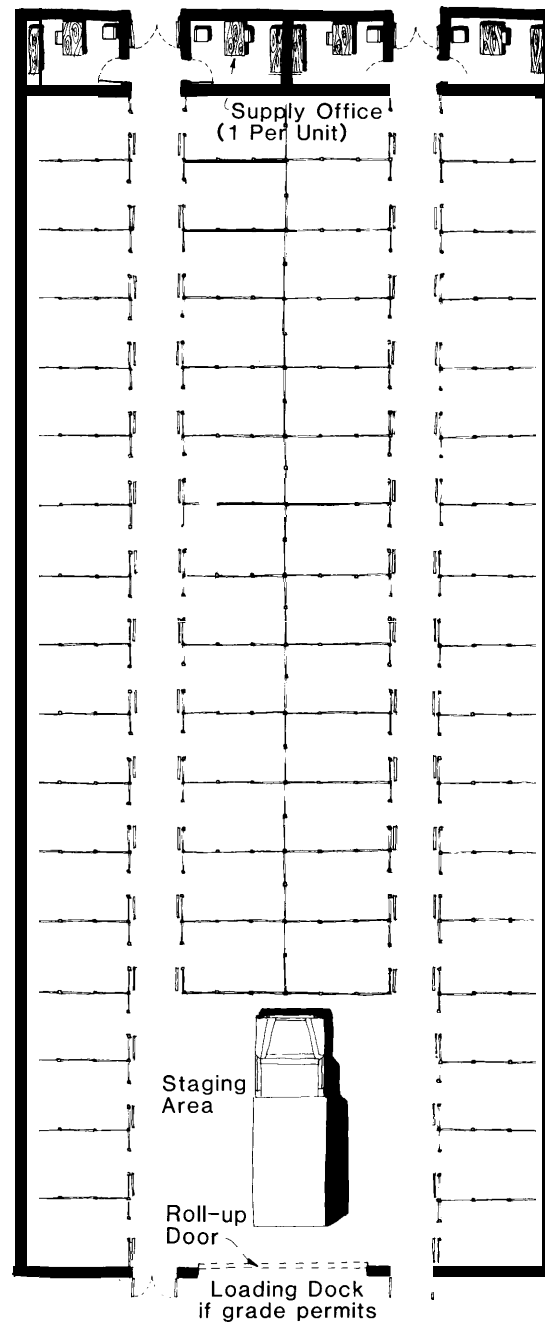


Figure 3-30. Large unit supply plan.

3-7. General and special support areas.

a. Toilets and showers.

(1) Function. Space will be provided for the necessary lavatories, urinals, water closets and showers to serve both training and maintenance buildings (Figure 3-31).

(2) General design requirements. Toilet rooms for men and women will be provided on each floor of the building and be easily accessible from all areas. Handicap signs will be placed on each toilet room door on the first floor only of the main building, when applicable. All toilet room entries should be visually screened. General layout dimensions and configurations will be as illustrated. Exhaust fans will be controlled by light switches (Figure 3-32).

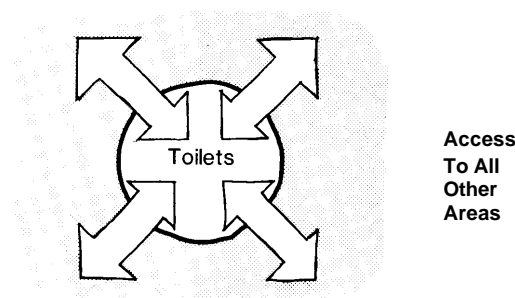


Figure 3-31. Toilet adjacency diagram.

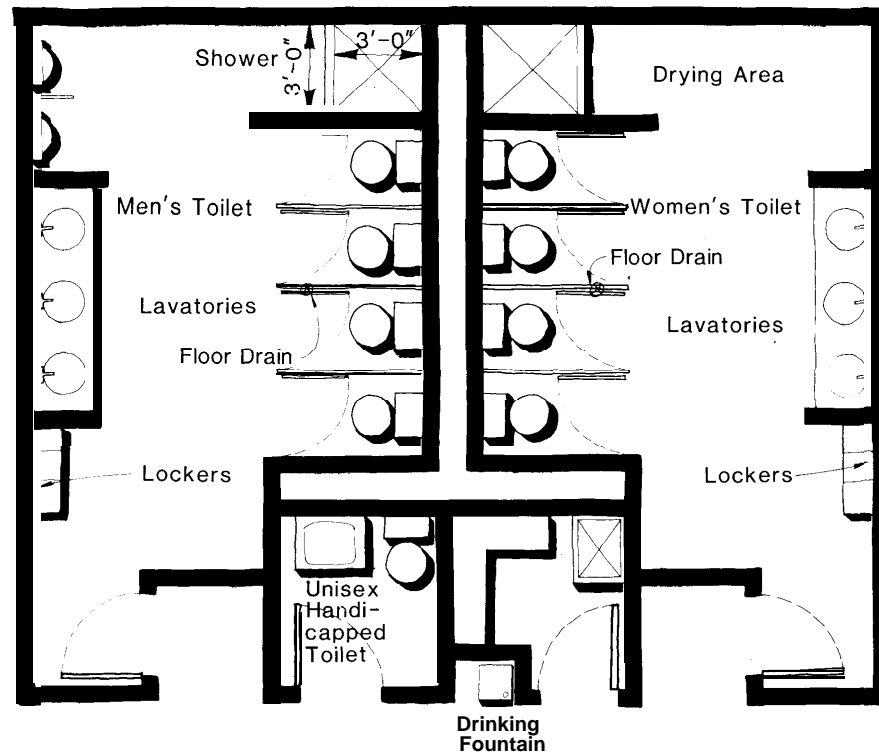


Figure 3-32. Toilet plan.

(3) Equipment. Shower stalls will be individual, pre-fabricated fiberglass units set in place. Standard metal or plastic laminate clad toilet partitions will be floor mounted with overhead steel bracing. Privacy screens should not be provided for urinals; however, a screen may be used between urinals and lavatories when located on the same wall. Grab bars will be provided in the unisex handicapped toilet room.

Fixture count will be determined by the maximum usage based on the largest number of persons drilling on a weekend. Use Tables 3-2 and 3-3 to calculate the number of authorized fixtures for men's and women's facilities. Floor drains will be provided for clean-up and maintenance in each toilet area. Water closets and urinals will be wall hung and of the syphon jet type. All plumbing fixtures will be furnished with water saving devices such as water saving flush valves, three and one half gallons per flush. Toilet fixtures for authorized medical facilities will be in addition to the total count for the center. For each water closet, provide one coat hook and one toilet paper dispenser. Provide one 16 inch by 20 inch mirror above each lavatory. Shelves should be provided in women's toilet rooms only. One bifold towel dispenser/disposal per toilet room will be provided. Provide one wall mounted liquid

soap dispenser for each lavatory. Toilet seats will be provided without covers. Provide 18 inch by 18 inch by 36 inch lockers in restrooms for full time employees. Provide robe hooks and soap dish at shower.

(a) Women's latrine facilities. For training buildings, calculate 30 percent of the largest drill weekend to be assumed for peak female occupancy, or use assigned female strength if that is the larger figure. Use Table 3-2 to select the correct number of fixtures and the total space allowance.

For AMSA, the 1 to 15 occupancy line below should be used for all women's toilets. For OMS shops, provide a unisex toilet with one water closet, one urinal and one lavatory.

TABLE 3-2. Women's Latrine

PEAK OCCUPANCY	WATER			TOTAL	
	CLOSETS	LAVATORIES	SHOWERS	FIXTURES	SPACE
1 to 15	1	1	1	3	150 SF
16 to 35	2	2	1	5	175 SF
36 to 55	3	3	1	7	225 SF
56 to 60	4	3	1	8	250 SF
61 to 80	4	4	1	9	275 SF
81 to 90	5	4	1	10	300 SF
91 to 110	5	5	1	11	300 SF
111 to 125	6	5	2	13	350 SF
126 to 150	6	6	2	14	375 SF
151 to 170	7	6	2	15	400 SF
171 to 190	7	7	2	16	400 SF
191 to 215	8	7	2	17	425 SF
216 to 230	8	8	2	18	450 SF

(b) Men's latrine facilities. For training buildings, calculate 90 percent of the strength of the largest drill weekend and use it as the peak male occupancy. Table 3-3 should be used to select the correct number of fixtures and the total space allowance.

For AMSA, 100 percent of the authorized maintenance personnel should be used. For OMS shops, provide a unisex toilet with one water closet, one urinal and one lavatory.

TABLE 3-3. Men's Latrine

PEAK OCCUPANCY	WATER				TOTAL FIXTURES	SPACE
	CLOSETS	URINALS	LAVATORIES	SHOWERS		
1 to 35	2	1	2	1	6	200 SF
36 to 55	2	1	3	1	7	225 SF
56 to 60	3	1	3	1	8	250 SF
61 to 80	3	1	4	1	9	250 SF
81 to 90	3	2	4	1	10	300 SF
91 to 125	4	2	5	2	13	325 SF
126 to 150	4	2	6	2	14	350 SF
151 to 170	5	2	6	2	15	375 SF
171 to 190	5	2	7	2	16	400 SF
191 to 215	6	2	7	2	17	400 SF
216 to 230	6	2	8	2	19	450 SF
231 to 270	6	3	8	3	20	475 SF
271 to 305	7	3	9	3	22	500 SF
306 to 310	7	3	10	3	23	500 SF
311 to 350	8	3	10	4	25	575 SF
351 to 390	8	3	11	4	26	600 SF
391 to 395	9	4	11	4	28	625 SF
396 to 430	9	4	12	4	29	625 SF
431 to 440	10	4	12	5	31	675 SF
441 to 470	10	4	13	5	32	700 SF
471 to 485	10	5	13	5	33	700 SF
486 to 510	10	5	14	5	34	725 SF
511 to 530	11	5	14	5	35	750 SF
531 to 550	11	5	15	5	37	800 SF
551 to 575	12	5	15	6	38	800 SF
576 to 590	12	5	16	6	39	825 SF
591 to 620	12	6	16	7	40	850 SF
621 to 630	12	6	17	7	42	875 SF
631 to 665	13	6	17	7	43	900 SF
666 to 670	13	6	18	7	44	925 SF
671 to 710	14	6	18	7	45	950 SF

b. Janitor's closet/maintenance storage.

(1) Function. Space shall be provided for the cleaning and storage of mops and related maintenance equipment.

(2) General design requirements. The janitor's closet shall be located adjacent to wet areas such as the toilets but with a separate access. One janitor's closet per floor shall be provided with the total area being deducted from the maintenance/chair storage allowance.

(3) Equipment. One floor mounted mop sink, ten linear feet of shelving and mop racks shall be provided (Figure 3-33).

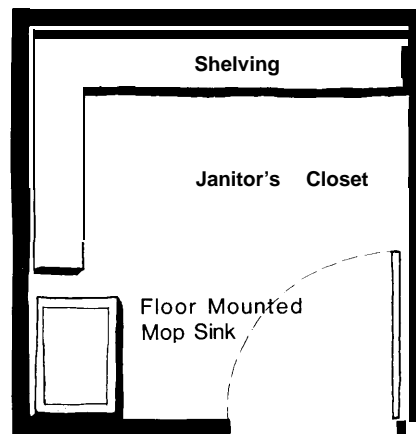


Figure 3-33. Janitor's closet plan.

c. Mechanical equipment.

(1) Function. Space shall be provided for the location of HVAC equipment, telephone panel and power panel serving the entire training center.

(2) General design requirements. The mechanical equipment room shall be located centrally, contributing to efficient distribution (Figure 3-34). Access to an exterior door landing by both personnel and vehicles is necessary. An interior door may be authorized for special conditions such as cold climates. The space authorization may be exceeded, if justified, to provide space for maintenance of the HVAC equipment. If multiple mechanical systems are used, then multiple mechanical rooms may be required. Provide separate electrical room and telephone room as required.

(3) Equipment. A plywood backboard shall be provided for the telephone panel only. An open bank terminal is acceptable. A roof access hatch and steel wall ladder shall be provided for access to the roof. No shelving or racks shall be provided (Figure 3-35).

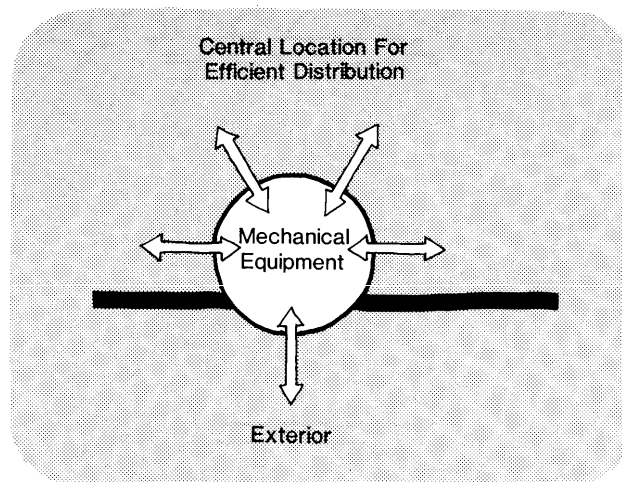


Figure 3-34. Mechanical equipment adjacency diagram.

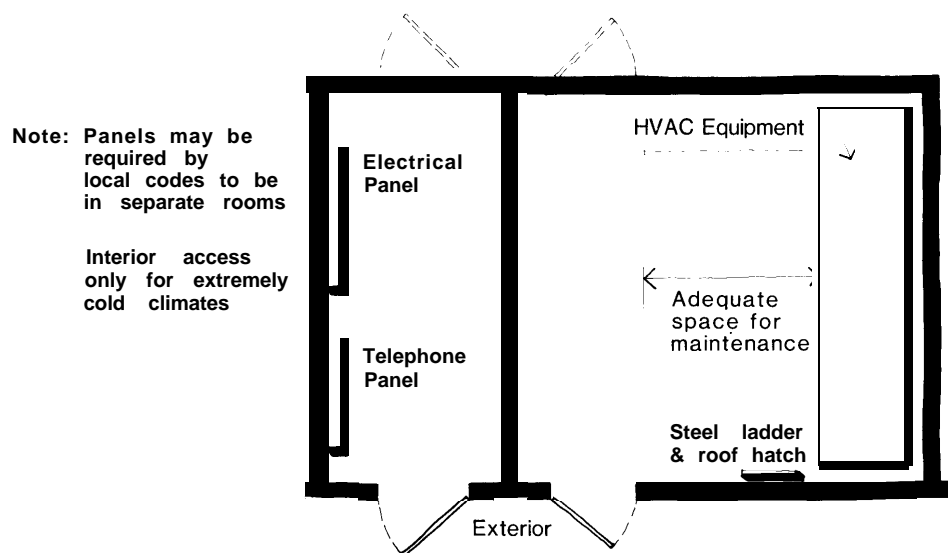


Figure 3-35. Mechanical equipment plan.

d. Arms vault

(1) Function. The arms vault provides secure storage of all weapons assigned to units at the facility. Ammunition may be stored in small amounts in some instances.

(2) General design requirements.

(a) The arms vault should be located adjacent to the firing range and assembly hall (Figure 3-36). The design should avoid locating this space on an exterior wall. Ample room outside of the vault door to accommodate the distribution of weapons should be provided. Construction of the vault will be

concrete. Walls must be 8 inches thick minimum, reinforced with # 4 reinforcing bars at 9 inches on center each way, each face, face staggered, to provide a projected 4-1/2 inch grid. The arms vault must not be penetrated by extraneous conduit, ducts, plumbing, etc. as this can create problems with the motion detection system. Ceilings must be 8 inches thick, with a minimum reinforcement of # 4 reinforcing bars, forming a grid such that no opening exceeds 96 square inches. Structural floors will be equivalent to ceiling requirements. Slabs on grade will be 6 inches thick with 6-inch by 6-inch #10/10 welded wire fabric.

(b) A Class V vault door capable of swinging open 180 degrees, with a heavy duty doorstop, will be provided. Day gates and clutch doors on arms vault are not normally provided. Provide anchor rings and rough-in for an intrusion detection system (IDS). Although the system and installation will not be included in the construction contracts, coordination with the supporting installation will be required. An alarm control box shall be placed outside the caged areas, but inside the vault. Refer to AR 190-11 for security criteria. Electrical power is to be provided through a non-fused 30 amp disconnect switch, located in the arms vault, to a lockable 30 amp disconnect switch fused for 20 amps, connected ahead of the main in the mechanical equipment room. A 3/4-inch rigid conduit should be provided from the telephone terminal board to a junction box located in the arms vault and a 3/4-inch rigid conduit from the arms vault junction box to a recessed junction box mounted on the building exterior. Provide a 110 volt outlet and a 2 inch diameter floor drain for the dehumidifier. These should be located adjacent to each other and outside of the caged areas. Battery back-up, fluorescent fixtures for emergency egress should be provided in the corridor over the vault door and be connected directly to the panel board. Coordinate lighting and caging layout to allow caging walls to extend to ceiling. In laying out arms vaults, use a 5 foot module for width to allow a 3-foot aisle between 10-1/4 inch wide rifle racks. Use a 3-foot module for length to allow for 36 inch rifle racks (Figures 3-37 and 3-38).

(3) Equipment. Gun racks and containers are government supplied and installed. A fire extinguisher should be located adjacent to the motion detection control box, both of which should be outside caged areas. Wire caging on a 3-foot and 5-foot module is to be provided by the contractor in vaults serving more than one military unit if requested. A dehumidifier outside the caged area should be provided.

(4) References. AR 190-11. Class V containers (safes) are approved for use instead of small arms storage racks and arms rooms where small quantities of weapons, central firing components and related ammunition are stored. Specific cabinets authorized for use are listed in AR 190-11.

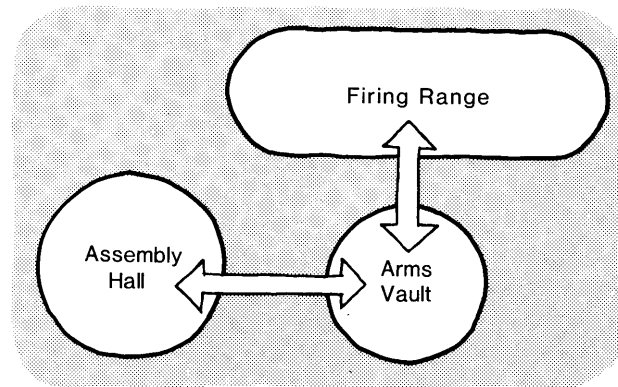


Figure 3-36. Arms vault adjacency diagram.

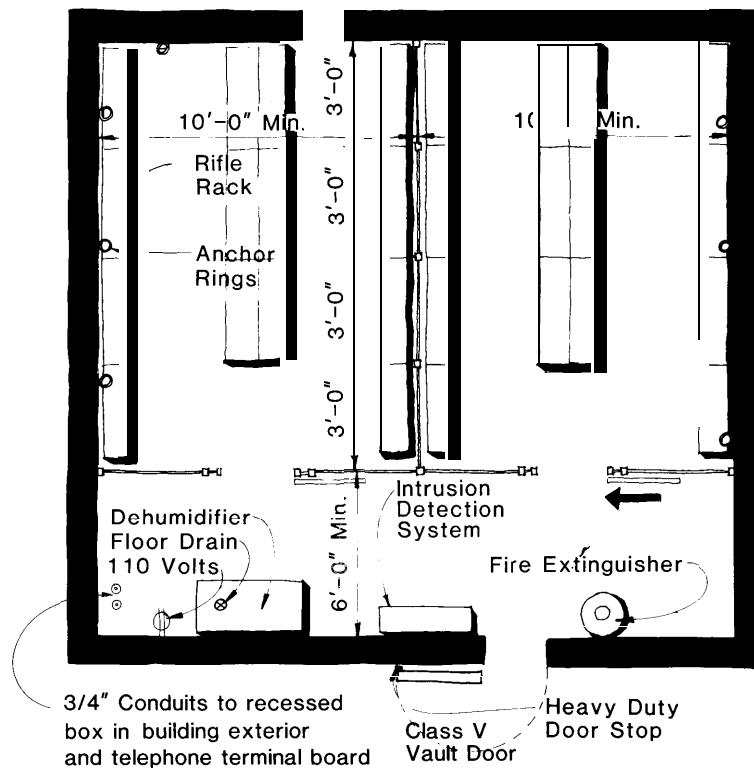


Figure 3-37. Arms vault plan.

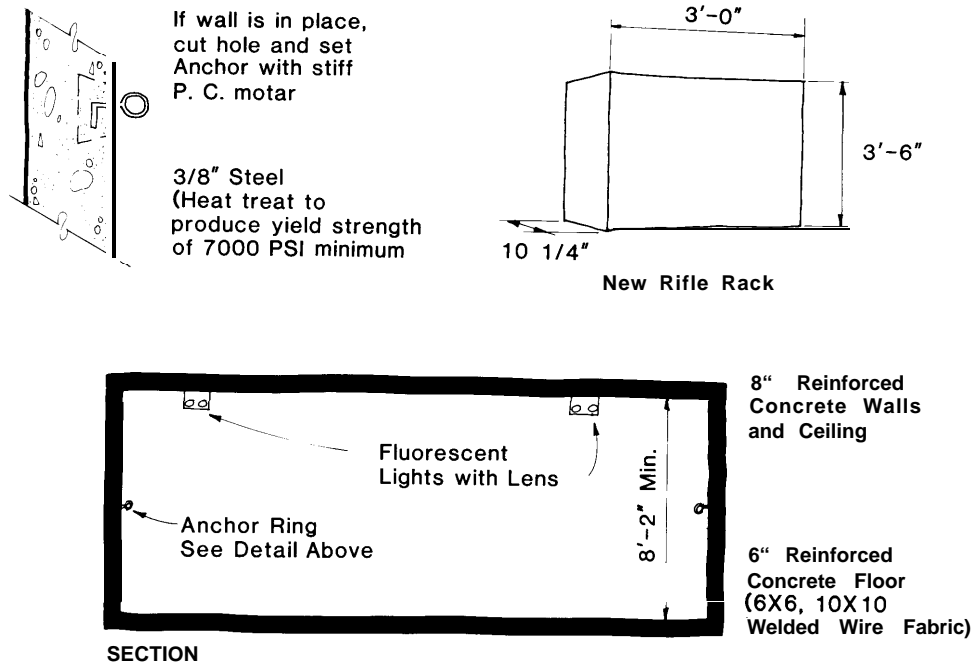


Figure 3-38. Arms vault details.

e. Rifle range.

(1) Function. The 600-inch firing range is used for qualification firing.

(2) General design requirements. It is preferable to locate the range away from the administrative areas. Access through the assembly hall is acceptable and will be adjacent to the arms vault (Figure 3-39). The rifle range will be designed in accordance with definitive designs for a 600 inch range and field design number FD28-13-03 and the CE-R series specification (Figure 3-40). The use of standard field design FD28-13-03 is strongly recommended because of the difficulty of meeting environmental requirements without a proven design. This design is also used for renovation of older ranges. Acoustical material should be provided on the side walls behind the firing line and extend down-range to a point 24 feet from the back wall. Acoustical material should also be provided on the ceiling from the firing line to a point 24 feet from the back wall. Corners and edges of the soundproofing must be protected in order to reduce wear and deterioration. A hose bibb inside the range and located behind the firing line should be provided for washing the range floor. A floor drain with removable plug should be located ahead of the firing line. Consider the modulation of the intensity of infrared heaters through the full range of each heater's capacity and/or vary the quantity of heaters for installations in different weather zones.

(3) Equipment. A .22 caliber bullet trap (escalator type) and manual target retrieval mechanism for each firing line, with 50-foot target stops, should be provided. A central control panel for lights and ventilation system, should also be provided. A sign will be posted, by others, in the

range area designating the acceptable weapons classification and ammunition to be used on the range. Targets and range equipment will be stored in the unit supply area or general storage area.

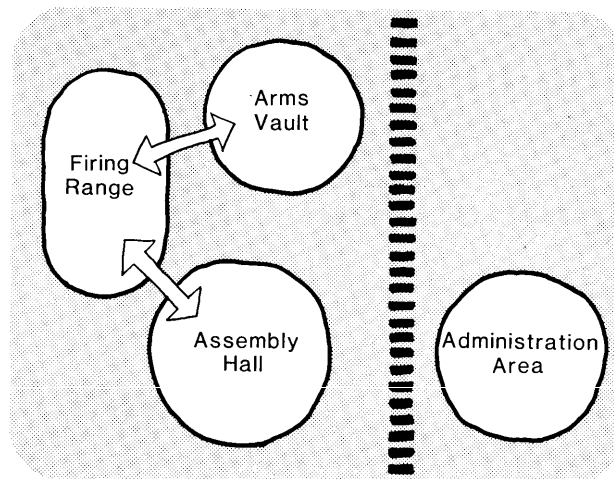


Figure 3-39. Rifle range adjacency diagram.

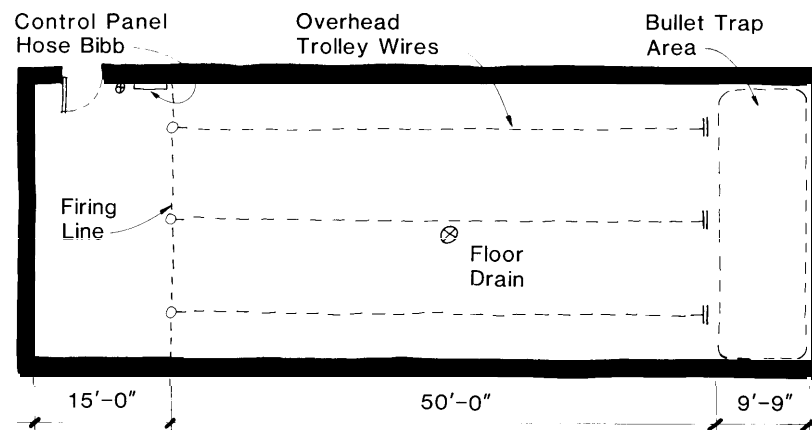


Figure 3-40. Rifle range plan

f. Medical wing.

(1) Function. When authorized, medical spaces will be provided for physical exams, treatment and professional medical training.

(2) General design requirements. The medical wing will be located within new buildings or expansion projects with a separate entry provided (Figure 3-41). It is essential that the medical wing be isolated from the rest of the building. The medical wing layout and capabilities may vary to suit the users' training requirements. The types of spaces that may be required are: waiting rooms, dressing rooms, medical exam rooms, dental exam rooms, supply

rooms, lavatories with male and female specimen toilet areas, laboratory, physical exam areas for blood pressure, E.K.G., audio meter, eye exam and height and weight measurement. Special purpose training areas such as operating rooms, scrub rooms, two bed wards, sterile supply rooms and pharmacy will be provided only when justified. Planning concepts should allow for privacy of patients when accessing dressing areas and toilets. Locate the medical wing with good access to a building entrance and to dedicated office space that can be assigned to the medical unit (Figure 3-42).

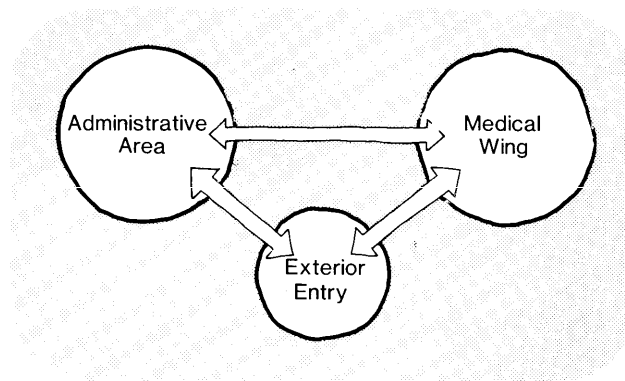


Figure 3-41. Medical wing adjacency diagram.

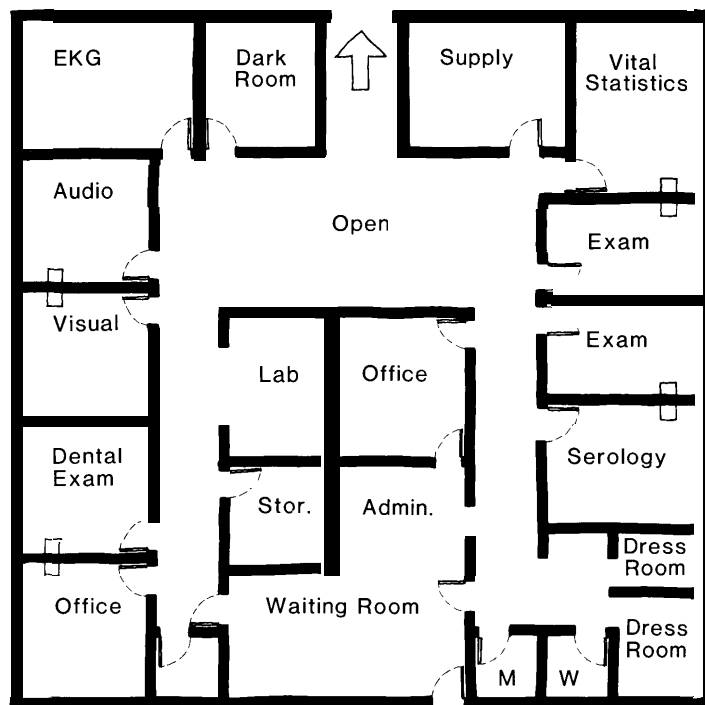


Figure 3-42. Medical wing plan.

(3) Equipment. Due to the variety of functional areas possible and variance in the medical equipment, the Using Service will provide a list of equipment and proposed locations for the special requirements when the concept design is completed. The necessary medical equipment, from standard medical equipment sets including the X-ray machines, will be provided by others. An X-ray equipment installation certificate will be required. All medical equipment will be furnished and installed by others. Built-in equipment includes the following:

(a) Waiting room: Admissions counter 15 inches wide by 49 inches high by 12 feet long.

(b) Dressing room: Feed-in clothes hooks - four per dressing room. A seat shall be built in on one side only.

(c) Medical exam room: Wall hung lavatory.

(d) Dental exam room: Wall hung lavatory.

(e) Laboratory: Base cabinets 24 inches deep by 36 inches high with chemical resistant work counter and a two compartment stainless steel sink. This unit will be located on one wall only or as an island. The total length should not exceed 16 feet.

(f) Specimen toilet: One water closet, one lavatory, one shelf, one towel dispenser and one pass-through door to the laboratory.

(g) Dark room: Work counter 24 inches wide by 36 inches high by 96 inches long with chemical resistant worksurface. This may be located on a wall and/or an island.

(h) Audio/meter room: One booth 3 feet by 5 feet with sound treatment to 55 STC and one counter on one end of the room, 18 inches wide and 28 inches above the floor.

(i) Supply room: Twelve-inch deep wood shelving, 5 shelves high, beginning 18 inches from the floor, and epoxy painted. This shelving may be installed on three walls. Metal shelving may be used if cost justified. Note: Other built-in or installed equipment may be included on a case by case basis, provided such equipment is fully justified for the operational training needs.

g. Photography laboratories.

(1) Function. Photography laboratories are used for training in photography developing and processing.

(2) General design requirements. Typical size is 250 square feet. The room should have red darkroom lighting with a light proof, rotary dark room door and lighted sign on exterior noting when room is "in use." Provide on one wall a processing sink 5 inches deep by 32 inches wide by 5 feet long, with plumbing. Adjacent to the sink provide a 3-foot wide cabinet. On another wall, provide one 2-foot wide cabinet with drawers, one 3-foot wide adjustable easel and one 3-foot wide cabinet (Figure 3-43). All cabinets should have chemical resistant worksurfaces.

h. Soils testing laboratories.

(1) Function. The soils testing laboratory performs soils testing functions.

(2) General design requirements. Space (approximately 100 square feet) should be provided with standard 110 volt electrical outlets and a lockable door. Eight feet of chemical resistant counter space and a two-compartment, chemical resistant stainless steel sink should also be provided. Provide an operable, insulating glass window on a maximum of 15 percent of wall space (Figure 3-44).

(3) Equipment. Moveable tables will be provided by others.

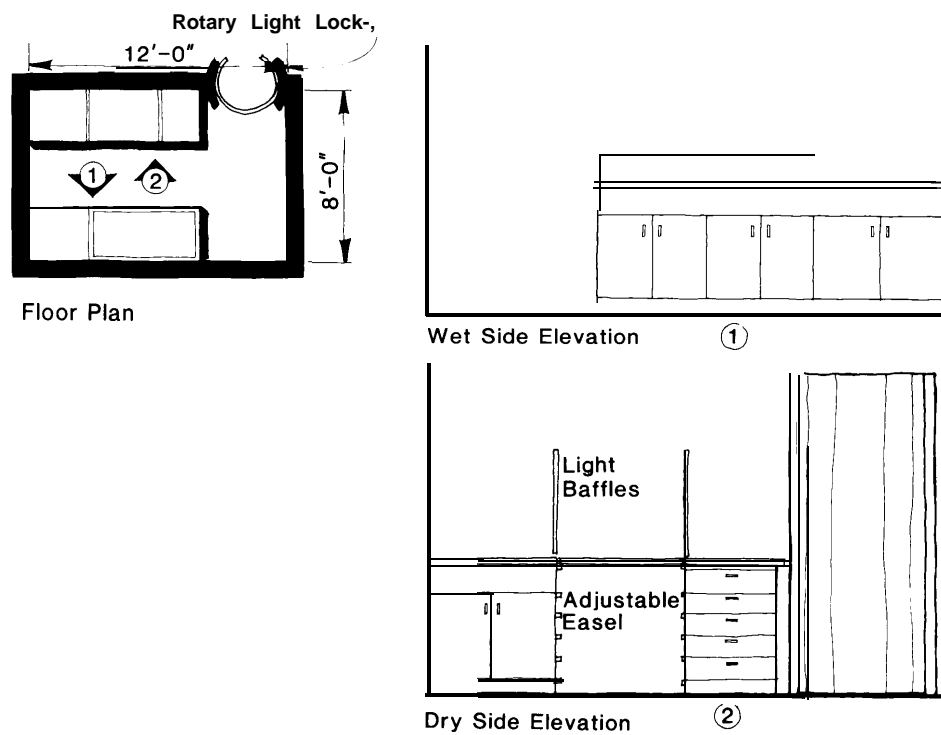


Figure 3-43. Photography lab.

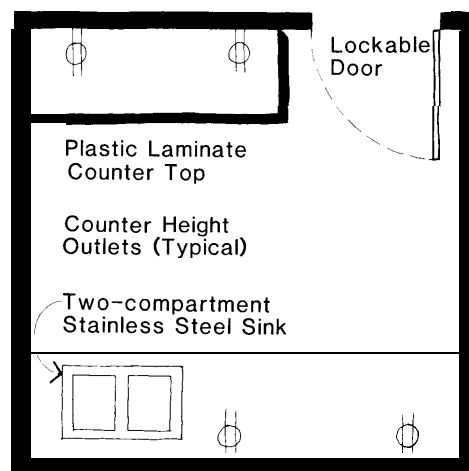


Figure 3-44. Soils testing laboratory.

i. Secure compartmented intelligence facility (SCIF).

(1) Function. This space is used for electronic intelligence training activities.

(2) General design requirements. Refer to Defense Intelligence Agency (DIA) Manual 50-3.

j . Band room.

(1) Function. The band room is a practice area for a standard 44 member band and storage space for their instruments.

(2) General design requirements. This space should be located adjacent to the assembly hall and isolated from classroom and administrative areas (Figure 3-45). Acoustical treatment to the walls and ceiling should be provided as required to attain an STC of 53. The walls should extend to the roof deck or floor above. Provide space as follows:

Area	Size (Feet)	Total Area (Square Feet)
2 Offices	10 x 15	300
3 Practice rooms	7 X 10	210
1 Storage	20 x 20	400
1 Rehearsal	16 x 25	800
1 Recording	8 x 10	80
1 Library	8 x 20	160
1 Main rehearsal	25 x 6	900
Total		2850

(3) Provide a two tier riser stage 20 feet by 36 feet. The first tier should have an 8-inch riser with a 5-foot tread. The second tier should have an 8-inch riser with a 15-foot tread. Provide storage shelving for sheet music, catalogs and phonograph records (Figure 3-46).

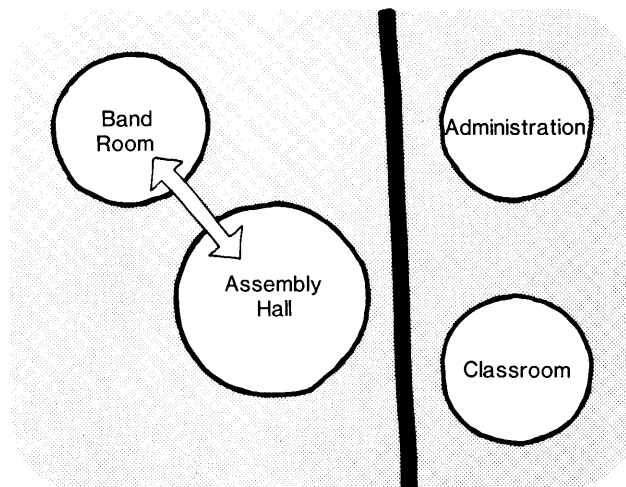


Figure 3-45. Band room adjacency diagram.



Figure 3-46. Band room plan.

Section III. MAINTENANCE FACILITIES.

3-8. Organizational maintenance shop (OMS).

a. Shop office.

(1) Function. The shop office provides space for the performance of administrative functions relating to dispatch records, maintenance records and scheduling.

(2) General design requirements. The location of the shop office should provide maximum visibility of work bays (Figure 3-47). Access should be provided from the shop office into the work bay area as well as from the exterior of the building. Drive through work bays should be included where possible (Figure 3-48).

(3) Equipment. Moveable furnishings such as desks and filing cabinets will be provided by others.

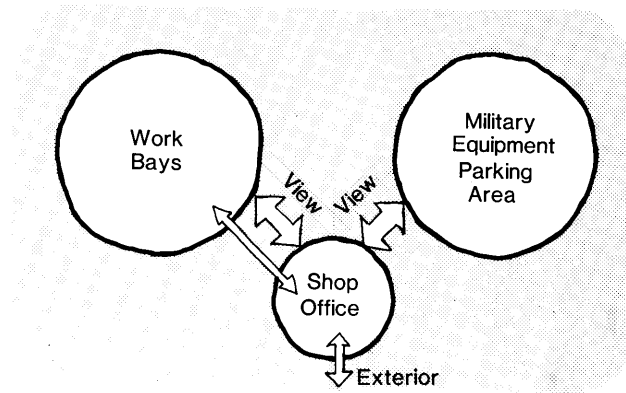


Figure 3-47. Shop office adjacency diagram (OMS).

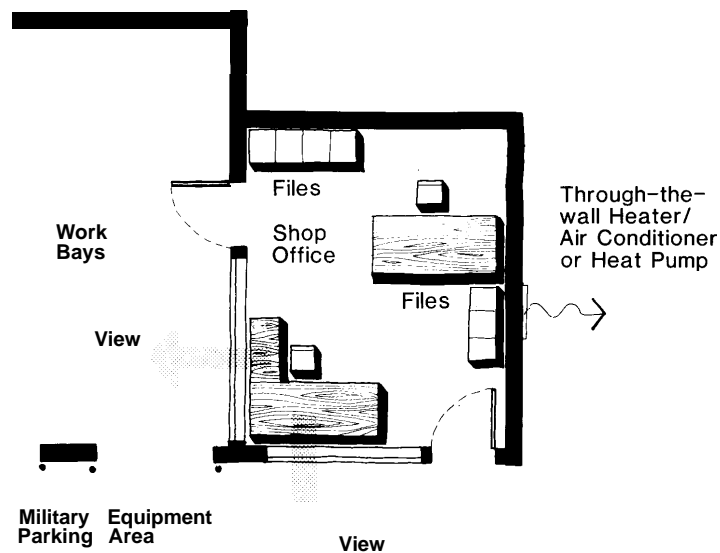


Figure 3-48. Shop office plan.

b. Work bay.

(1) Function. The work bay provides space for the performance of services and repairs of assigned equipment (mobile and stationary).

(2) General design requirements.

(a) The work bays are the core of the OMS, with the other support

areas normally located around the perimeter to provide direct access to the work bays, especially the shop office (Figure 3-49). The work bays must also have direct access to an eyewash/deluge shower, service sink and electric water cooler. The functional layout should allow for the future addition of work bays. There are two basic types of work bay configurations, single access and drive-through double access (Figures 3-50 and 3-51). Water run-off from work bay cleaning operations should be collected in a trench drain located inside the overhead door and emptied into a grease/oil separator connected to the sanitary sewer.

(b) A 15 amp, 208 volt receptacle and plug should be provided for a welder when authorized. Welding equipment must be provided with a hood. A good location is near the overhead door so the welder can be used on the concrete apron. In instances where it becomes more economical to construct the OMS with one roofline, the area above the ancillary shop space may not be used for additional storage and mechanical equipment space. Maintenance drive-through work bays should be 20 feet wide by 36 feet long. Single access bays should have the same width but should be 40 feet long. End bays must be 23 feet wide for circulation and work bench space. Concrete aprons serve as outdoor workbays and should be the same dimensions as the adjacent indoor bays. End work bays are authorized an additional 3 feet of width for circulation. A 40-foot deep exterior concrete service apron should be provided for each work bay for use of portable hydraulic hoists. The vehicle exhaust drops should be located in each work bay 24 feet from the work bay entrance. The drops must be of sufficient flexibility and length to adequately serve vehicles with rear or right-side exhaust. The light fixture layout should be designed to provide adequate illumination even when the overhead doors are open. A minimum vertical clearance of 14 feet must be maintained in work bays (Figures 3-52 and 3-53). In addition to overhead doors for vehicle access, the work bays should also include personnel doors. Steel pipe bumper posts 5 feet 6 inches high should be provided at overhead door locations. Check swing of vehicular exhaust system for interference with lights, mechanical equipment, hoists, doors, etc.

(3) Equipment. An air sweep exhaust for the entire work area should be located 1 foot 6 inches above the floor. Overhead unit heaters and light fixtures in the work bays should be located to avoid interfering with the operation of the overhead doors or restricting the clearance above the vehicles being serviced. Vehicle exhaust system will be contractor furnished and installed. A portable hydraulic lift will be unit furnished and installed. Air compressor will be contractor furnished and installed and normally located in the mechanical room. Service sink and electric water cooler will be contractor furnished and installed. Fire extinguisher brackets will be contractor furnished. One cold water hose bib, one compressed air outlet with quick disconnect and one 110 volt duplex should be located between adjacent bays, at each door and in the center. Thus, for a 6 bay drive-through shop, provide 6 clusters. Protect hose bib and compressed air outlets with steel pipe posts. Piping for the compressed air will be provided by the contractor, and in an OMS, space in the electrical panel will be provided for power to the compressor. A compressed air outlet to the exterior apron area should be provided. Information related to the size of the compressor must be verified by the Design Agency at the end of the concept design phase.

Provide a 7-1/2-ton monorail crane for AMSA and DS/GS shops. The monorail shall run across the width of the bays.

- (a) Locate lighting between bays to eliminate shadows.
- (b) Use skylighting.
- (c) Provide windows in overhead doors.
- (d) Use electrical overhead door operators.

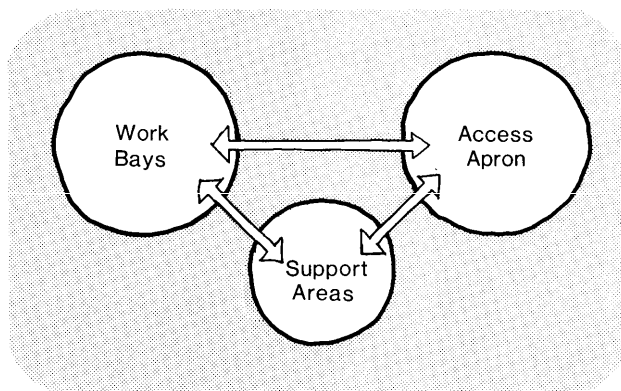


Figure 3-49. Work bay adjacency diagram (OMS).

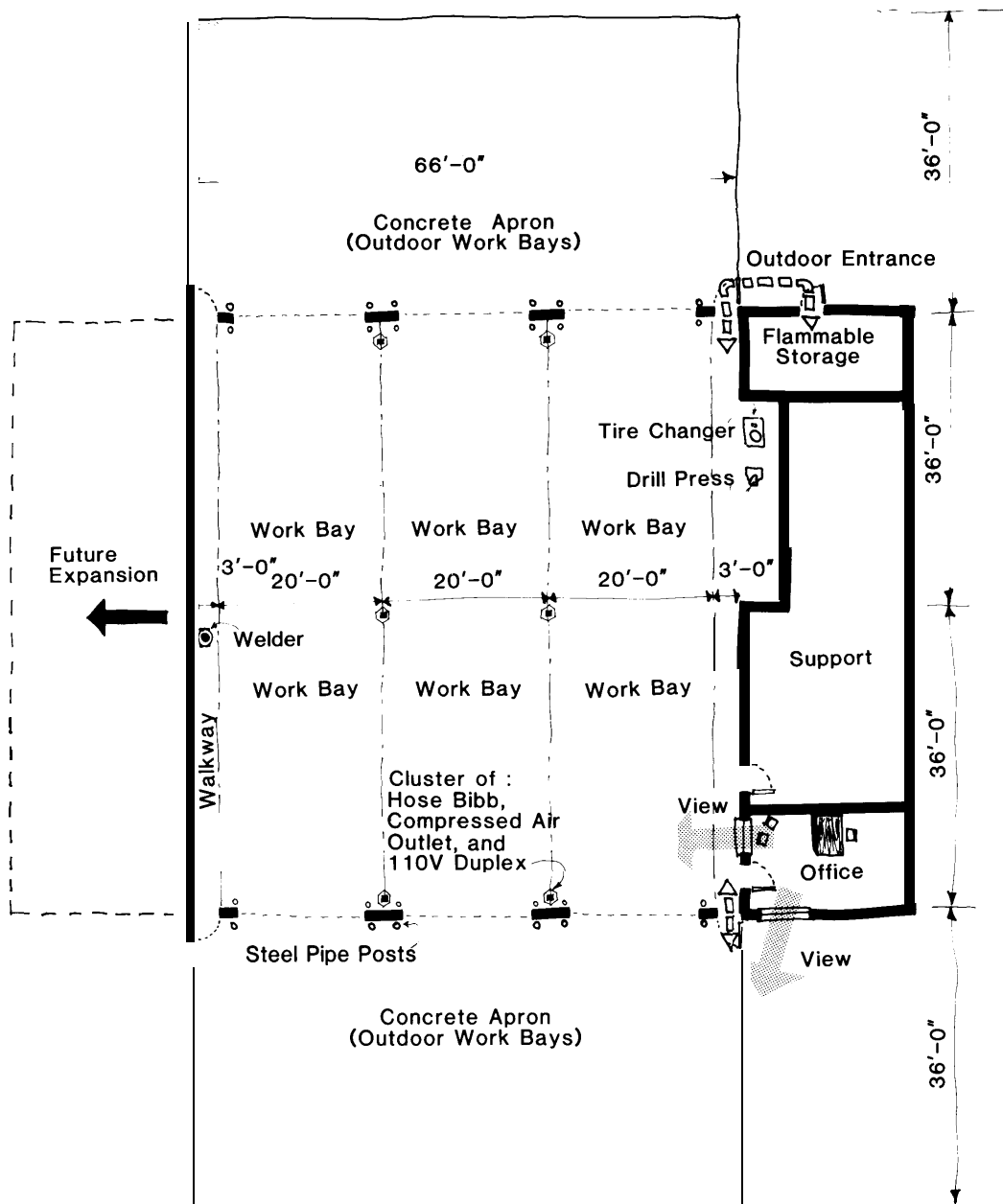


Figure 3-50. Drive-through double access work bay plan (OMS).

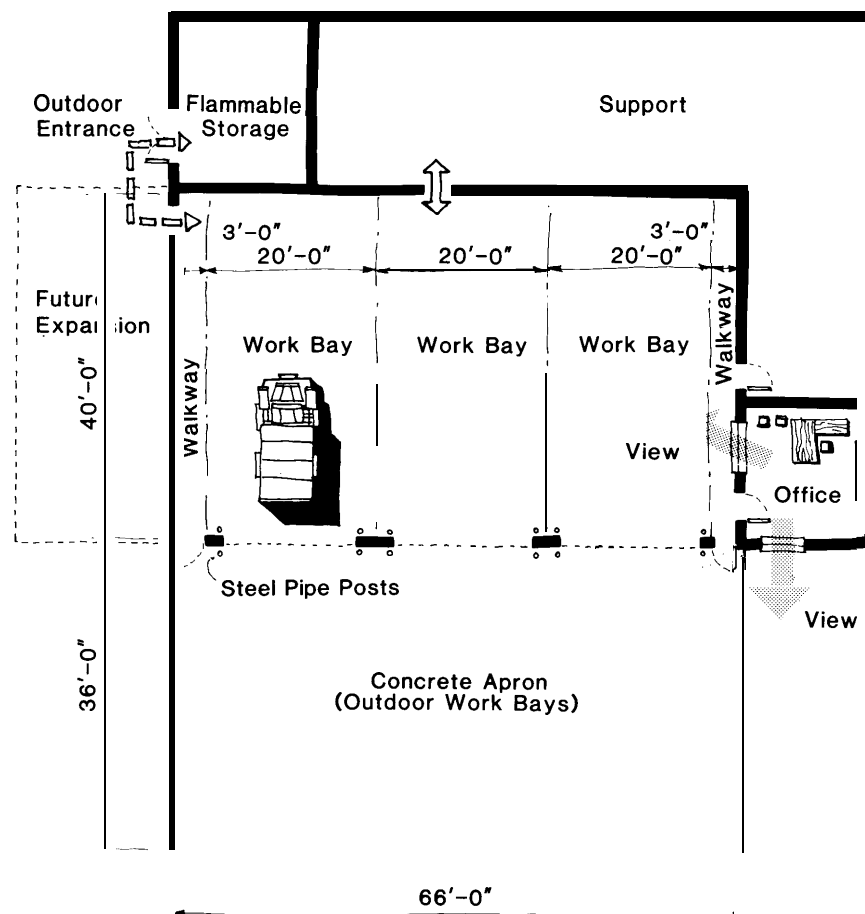


Figure 3-51. Single access work bay plan (OMS).

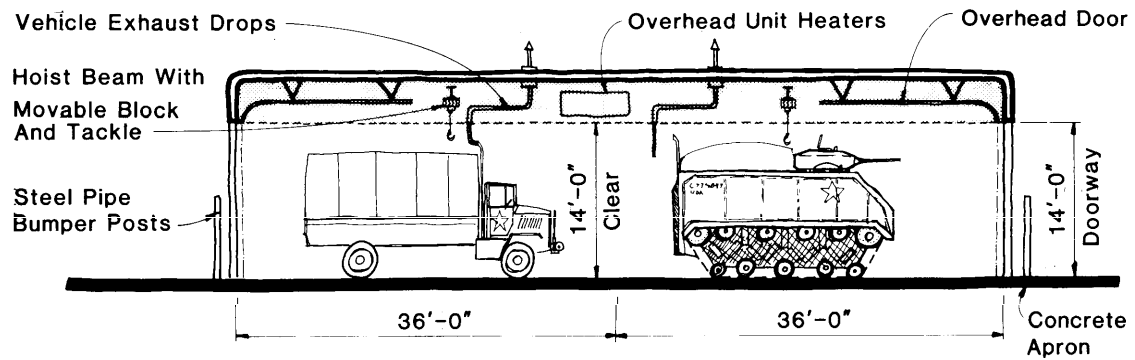


Figure 3-52. Work bay section (OMS).

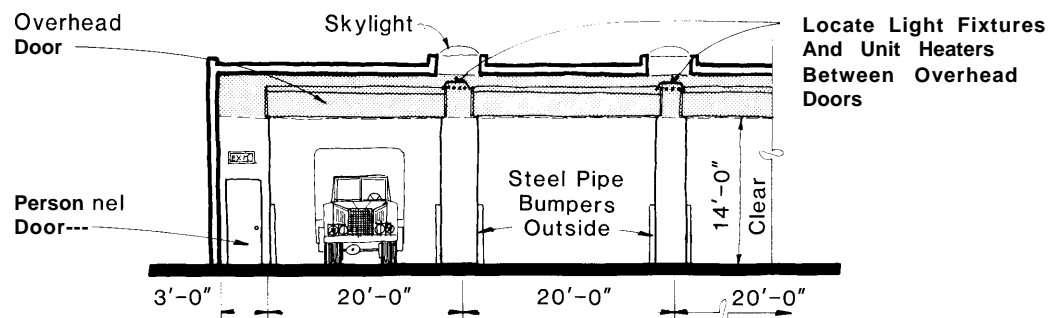


Figure 3-53. Work bay section (OMS).

c. Tools and parts.

(1) Function. This space provides storage and issue for spare parts and storage of tools, especially mechanics' tool sets and organizational maintenance sets.

(2) General design requirements. The tool and parts space should be adjacent to the storage room and directly accessible to the work bays (Figure 3-54). The space is divided by caging planned on a 5-foot 6-inch module. The door should be operable from the inside when locked from the outside. The Design Agency will verify whether or not a dutch door is required. Divide allocated space into 8-foot by 12-foot cages. Shelving will be contractor furnished and installed (Figure 3-55).

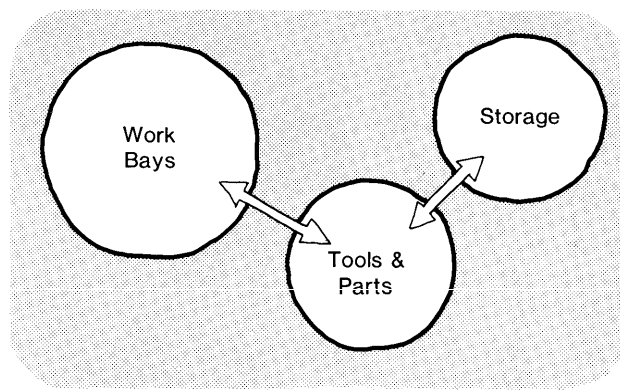


Figure 3-54. Tools and parts adjacency diagram (OMS).

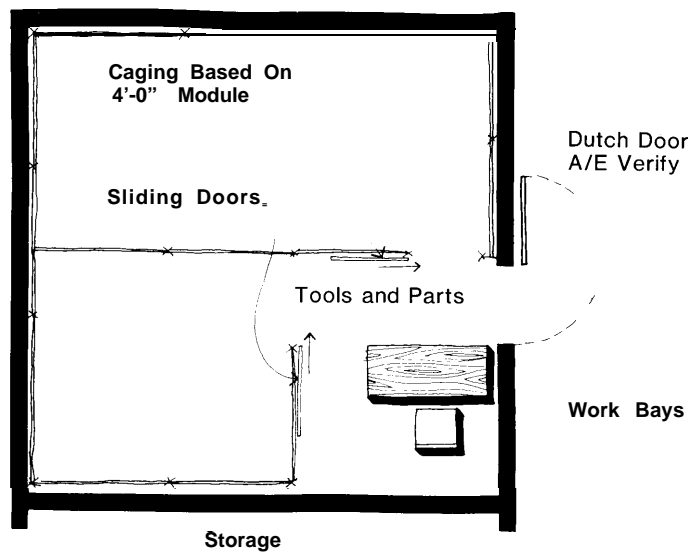


Figure 3-55. Tools and parts plan (OMS).

d. Storage.

(1) Function. Storage space should be provided for ancillary equipment issued with vehicles, including operators' vehicle maintenance tools, canvas, canvas bows, seats, sideboards, etc.

(2) General design requirements. The location of storage areas should be adjacent to and directly accessible to the work bays and be adjacent to tool and parts storage. This space may be divided by caging with separate access to accommodate more than one military unit. When used, caging shall be planned on a 5 foot module. A minimum of two duplex 110 volt outlets shall be provided.

e. Battery.

(1) Function. This space is to be provided for servicing, charging, and storage of lead-acid batteries.

(2) General design requirements. The battery space should be located adjacent to the toilet area, whenever possible, in order to reduce plumbing lines (Figure 3-56). A floor drain and hose bib should be provided. The drain should be connected to the sanitary sewer with acid resistant line. An acid neutralization step, if required by local codes, should also be installed. Based on the number of batteries to be charged, provide 110 volt duplex outlets above the benches. Power to the outlets should be provided by a switch which also controls the exhaust fan. In addition, a fail switch should be provided to assure that charging cannot take place without proper ventilation. The lights may be controlled separately. Eyewash/deluge showers will be located at the battery room entrance both inside and outside. Open flame heating devices will not be used in the battery room (Figures 3-57 and 3-58).

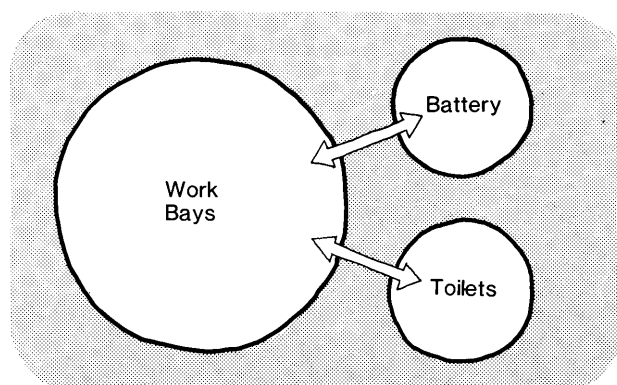


Figure 3-56. Battery adjacency diagram (OMS).

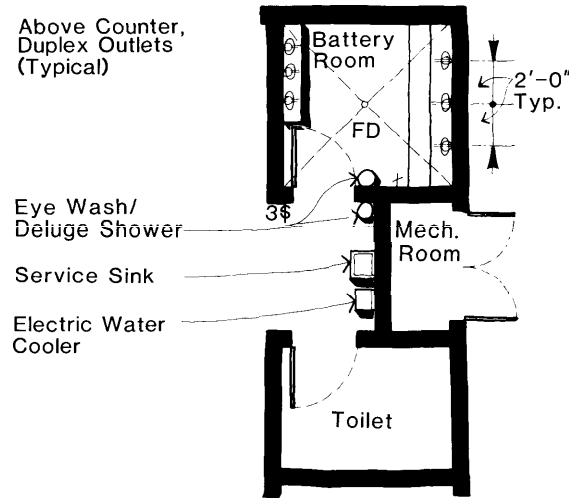


Figure 3-57. Battery plan (OMS).

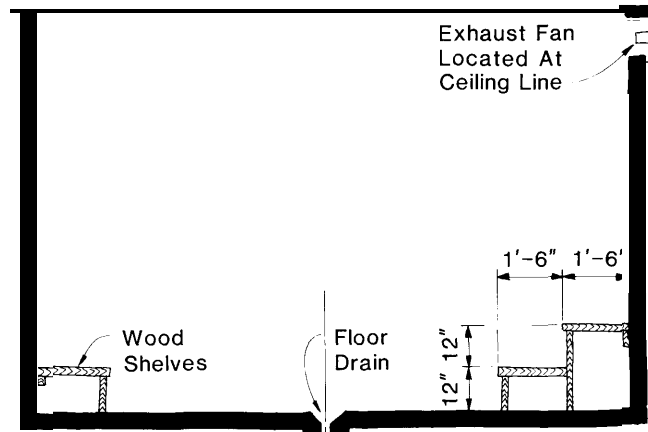


Figure 3-58. Battery section (OMS).

(3) Equipment. The length of shelving provided in an OMS varies from 20 linear feet for an 80 square foot battery space to 50 linear feet for a 200 square foot battery space. Proportions for an AMSA battery room are the same and increase to 100 linear feet for a 400 square foot AMSA battery room. The nominal width of shelving is 18 inches. The recommended material for this shelving and frame is redwood. Redwood benches will be contractor furnished and installed.

f. Toilets.

(1) Function. Restrooms will be provided for personnel working in the OMS and MEP areas.

(2) General design requirements. Toilets should be located near the battery room, service sink and eyewash/deluge shower to reduce plumbing runs (Figure 3-59). Wall hung water closets and syphon jet urinals should be provided. Lighting fixtures should be integrated into the ceiling in lieu of fixtures over the mirrors. One water closet with a partition, one urinal and one lavatory should be provided in a unisex toilet room. A screen should be provided between the urinal and the lavatory. The door to this space should be provided with a privacy lock (Figure 3-60).

(3) Equipment. Provide standard metal clad or plastic laminate toilet partitions. One coat hook and one toilet paper dispenser for each water closet, one 16-inch by 20-inch mirror above each lavatory and one hi-fold towel dispenser per toilet space should be provided.

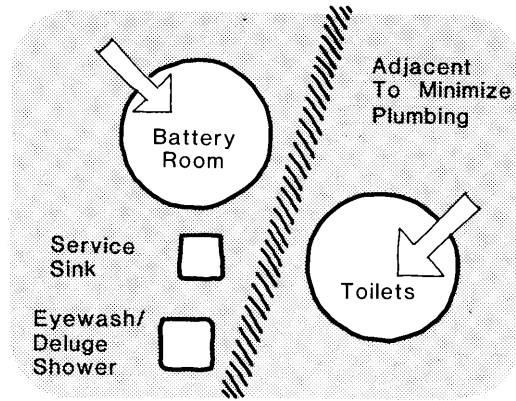


Figure 3-59. Toilet adjacency diagram (OMS).

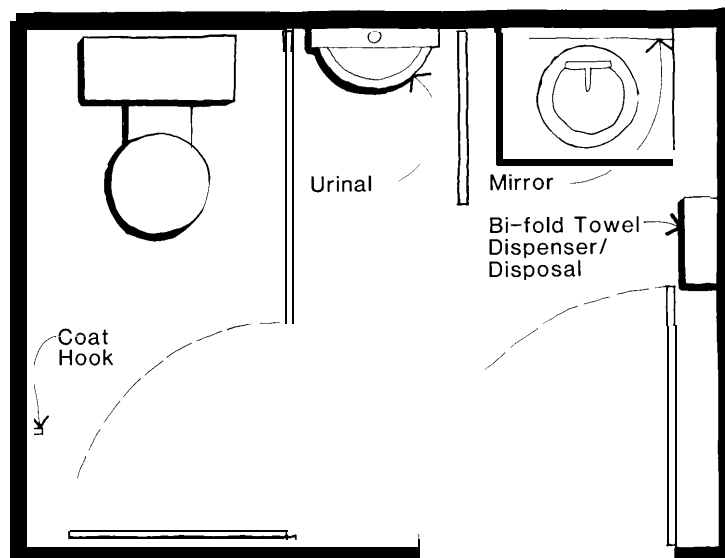


Figure 3-60. Toilet plan (OMS).

g. Flammable storage.

(1) Functions. This space is provided for storage of petroleum based lubricants and paints. This space is normally constructed as part of the OMS when authorized.

(2) General design requirements. This space should be provided with exterior access only. Light switches should be mounted external to the flammable storage and be weatherproof with a power-on indicator light. Provide continuous gravity ventilation.

h. Mechanical equipment.

(1) Function. Space should be provided for the location of electrical panels, hot water heaters, heating equipment and air compressors.

(2) General design requirements. The mechanical equipment space should be centrally located for efficient distribution. Access may be from the interior or, preferably, from the exterior of the building. The door must be sized to accommodate the servicing and removal of the equipment. The door should be operable from the inside when locked from the outside. Space exclusively for mechanical equipment may not always be required. In that case, equipment such as water heaters, compressors and electrical panels should be placed out of the way without restricting accessibility to the equipment.

(3) Equipment. An air compressor, hot water heater, all electrical panels and other mechanical equipment will be contractor furnished and installed.

3-9. Area maintenance support activity (AMSA).

a. Small arms shop and vault.

(1) Function. The shop and vault provide space for the repair and storage of small arms such as rifles, machine guns, grenade launchers, etc.

(2) General design requirements. The shop should be located adjacent to the arms vault with access to the vault through the shop (Figures 3-61 and 3-62). A 110 volt continuous strip should be provided over the work benches. Work benches and their locations will be provided by the user. Construction of the vault is similar to the training center building vault. Refer to paragraph 3-7.a.

(3) Equipment. The lighting level in the shop may be supplemented by task lighting for detailed work and will be provided by the user.

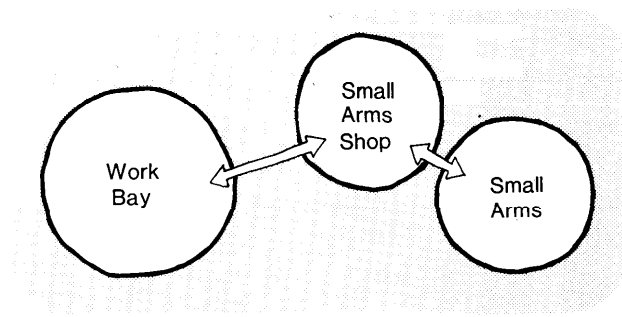


Figure 3-61. Small arms shop and vault adjacency diagram (AMSA).

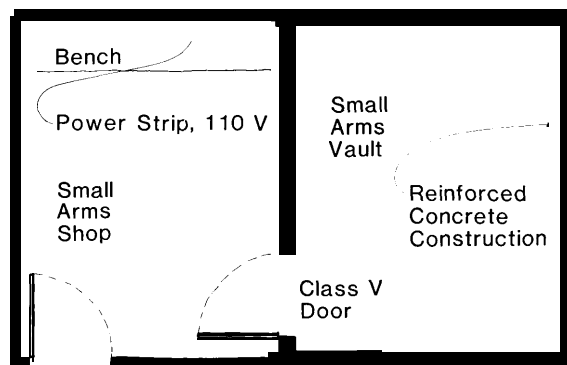


Figure 3-62. Small arms shop and vault plan.

b. Supply.

(1) Function. Space should be provided for the storage, receipt and issue of spare parts for AMSA maintenance and operations.

(2) General design requirements. The supply space is a part of the tools and parts room, but should also be separated from the tools and parts with standard 4-foot module caging. The space should be centrally located for ease of access from the bays (Figure 3-63). A minimum of two duplex 110 volt wall outlets should be provided. A full height or clutch door may be provided into the caged area. A supply office may be provided adjacent to the supply space. The design criteria are the same as those for an OMS office space (Figure 3-64).

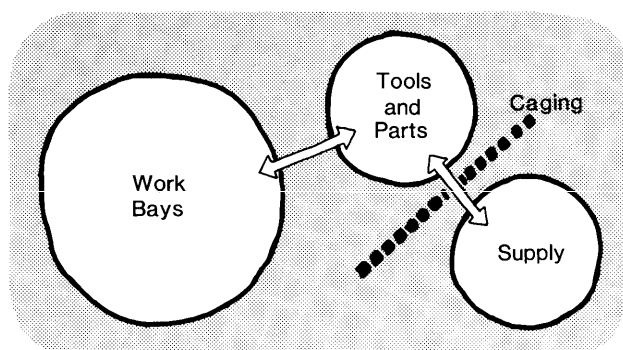


Figure 3-63. Supply adjacency diagram (AMSA).

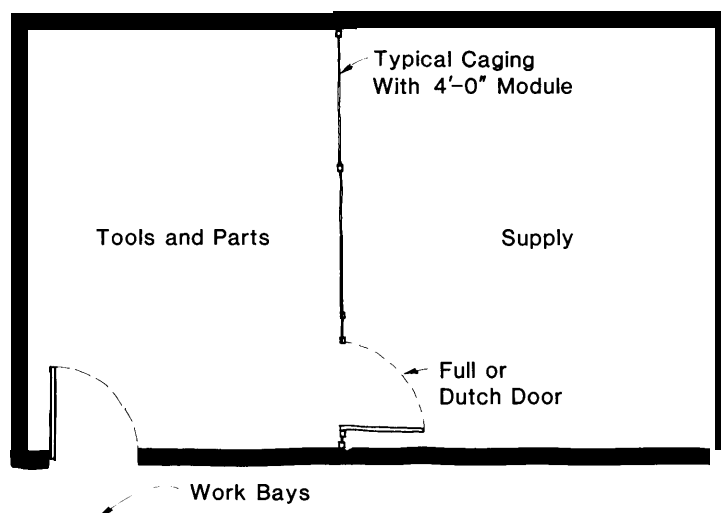


Figure 3-64. Supply plan (AMSA).

c. Communications/electronics repair.

(1) Function. This space is provided for the repair and storage of supported units' communications equipment.

(2) General design requirements. This space should have direct access into the work bay area. Consideration should be given to insulating the room separately to reduce the energy requirement for air conditioning (Figure 3-65). Provide a 110 volt continuous wall outlet strip, 48 inches above the floor, over the work benches. The work benches will be provided by the Using Service. The lighting level may be supplemented by task lighting for fine work and will be provided by the Using Agency (Figure 3-66).

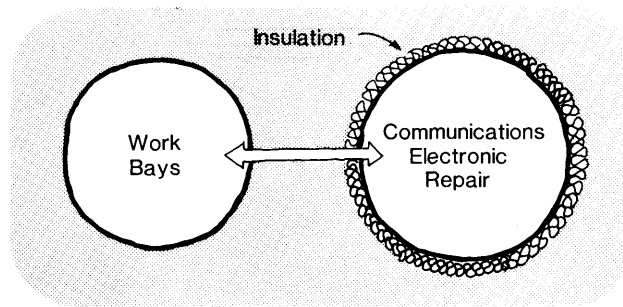


Figure 3-65. Communications/electronic repair adjacency diagram (AMSA).

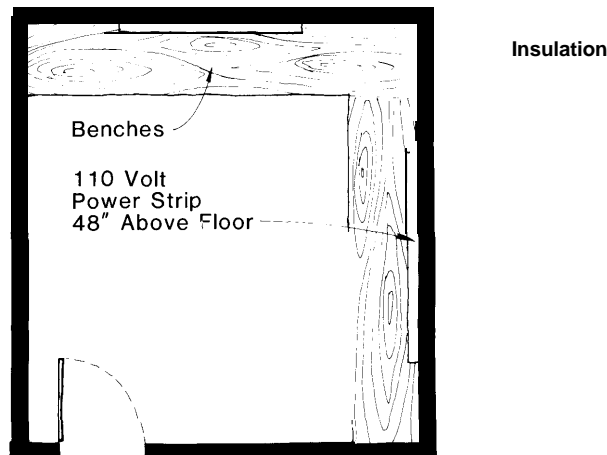


Figure 3-66. Communications/electronic repair plan (AMSA).

d. Break room.

(1) Function. A multi-purpose space for employee relaxation and meals should be provided. This space may also be used to conduct classroom training activities.

(2) General design requirements. This multi-purpose space should be located adjacent to the locker areas or combined with the lockers in one room (Figures 3-67, 3-68 and 3-69).

(3) Equipment. A wall mounted electric water fountain should be provided.

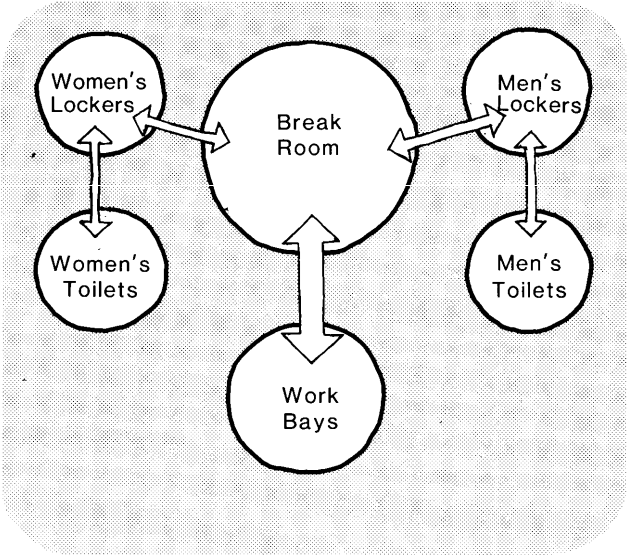


Figure 3-67. Break room adjacency diagram (AMSA).

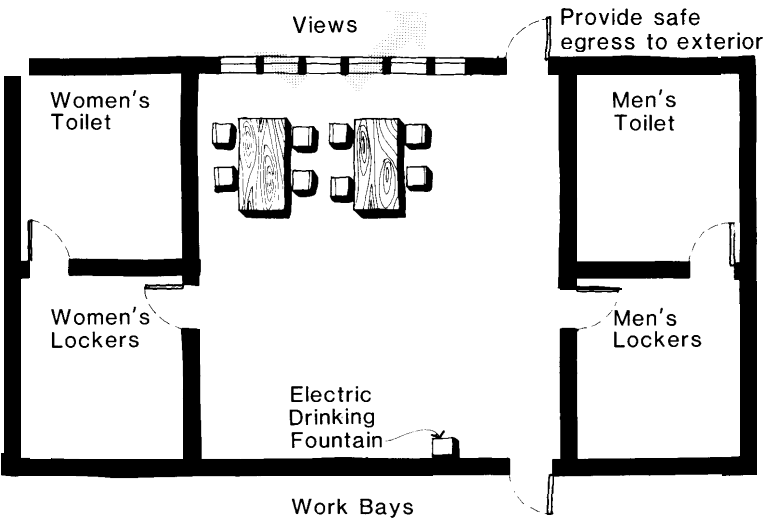


Figure 3-68. Break room plan (AMSA).

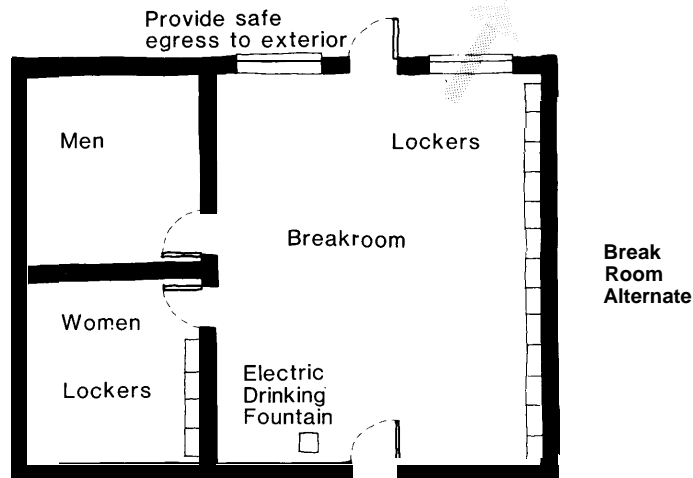


Figure 3-69. Alternative break room plan (AMSA).

e. Locker room.

(1) Function. Separate spaces for both men's and women's lockers should be provided. These lockers will be used by full time, civilian maintenance technicians to store street clothing and to change.

(2) General design requirements. The lockers should be located adjacent to the break area and their respective toilet facilities (Figure 3-70).

(3) Equipment. Provide wall hung, full-size, solid metal lockers, 15 inches wide by 18 inches deep by 72 inches high. The number of wall lockers should equal the number of AMSA personnel authorized (Figure 3-71).

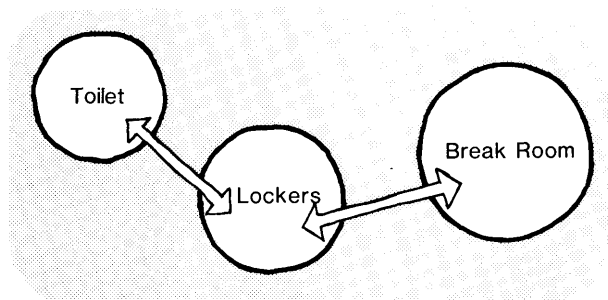


Figure 3-70. Locker room adjacency diagram (AMSA).

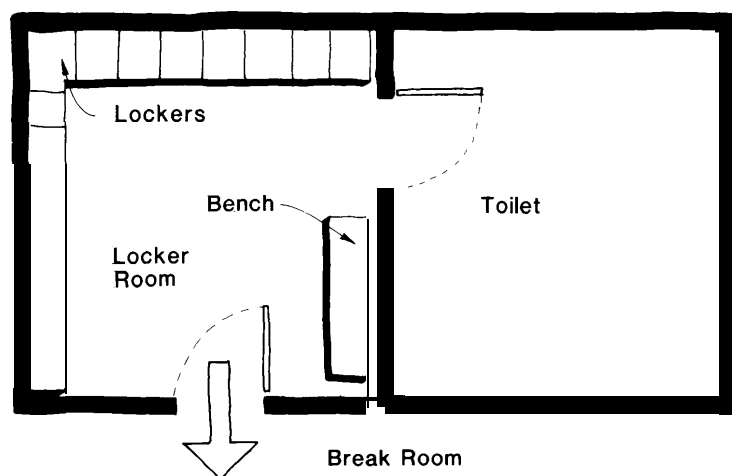


Figure 3-71. Locker room plan (AMSA).

f. Toilets.

(1) Function. Restroom facilities for employees.

(2) General design requirements. Toilet areas should be located as close as possible to service sinks, battery rooms and eye wash/deluge showers to reduce the length of plumbing lines (Figure 3-72). The area for toilet rooms should be based on the number of fixtures. The number of fixtures to be provided will be based on the number of authorized employees and on Tables 3-2 and 3-3.

(3) Equipment. The following equipment shall be provided:

- (a) wall hung water closets and syphon jet type urinals
- (b) standard metal or plastic laminate clad toilet partitions
- (c) one coat hook and one toilet paper dispenser per water closet
- (d) one 16-inch by 20-inch mirror and one light per lavatory
- (e) one hi-fold towel dispenser per toilet room

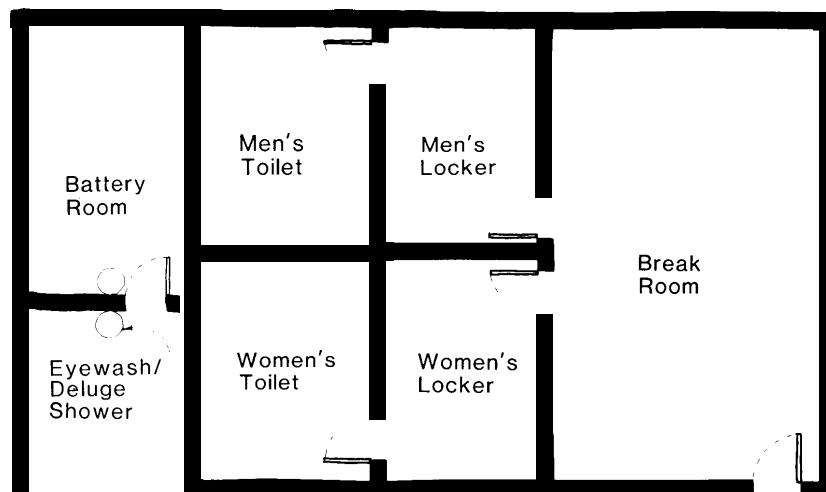


Figure 3-72. Toilets (AMSA).

3-10. AMSA diagrams. Figure 3-73 illustrates the overall functional relationships within an AMSA. Figures 3-74 and 3-75 illustrate a drive-through AMSA and a drive-through AMSA/OMS combination respectively.

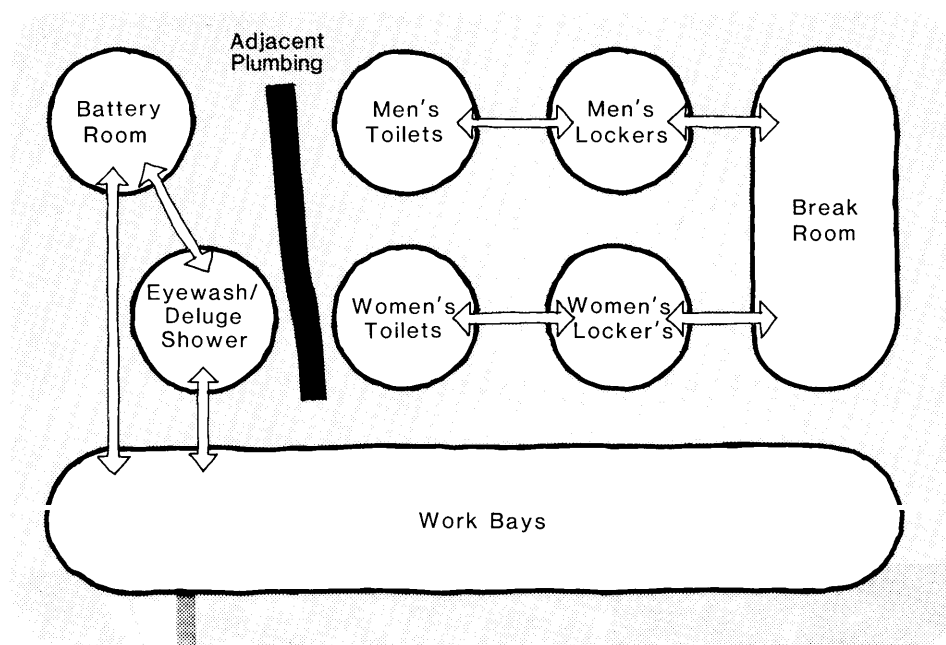


Figure 3-73. AMSA adjacency diagram.

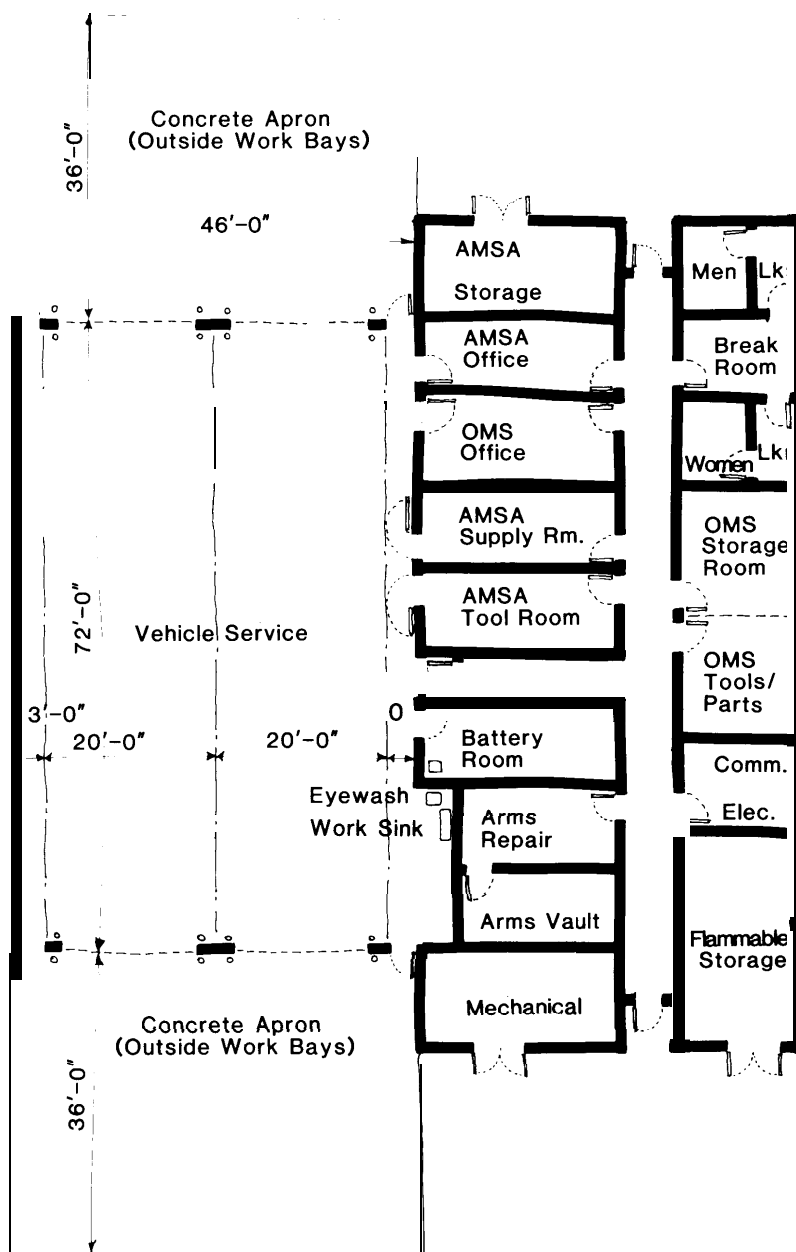


Figure 3-74. Drive-through AMSA plan.

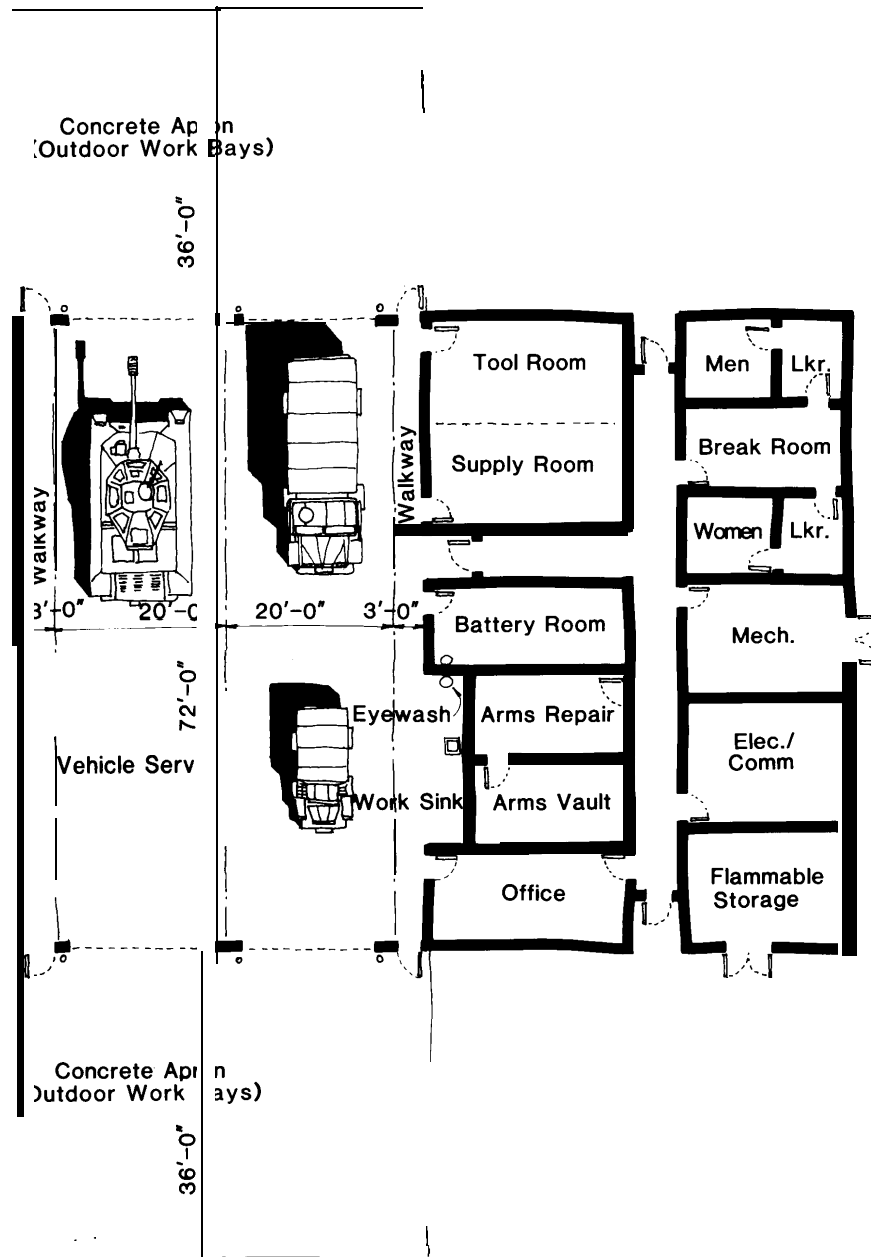


Figure 3-75. Drive-through AMSA/OMS plan.

3-11. Direct support and general support (DS/GS).

a. Function. Direct support and general support (DS/GS) maintenance shops will be built only in support of a facility whose mission is DS/GS maintenance. This level of maintenance activity requires more specialized repair, calibration equipment and highly skilled repairmen. The missions of specific units vary widely. Consequently, a standard design or even a functional space breakdown has not been developed for DS/GS units. The facilities program will define the specific functional area breakdown and ancillary support equipment required for each DS/GS shop building.

b. General design requirements. The user will provide a precise definition concerning the various maintenance functions of the DS/GS shop and the actual and perceived relationship between the various functions. The functional and physical requirements of the support facilities must be fully defined to insure correct design and layout. DS/GS shops are rarely built separately from a United States Army Reserve Center (USARC); therefore, they will normally be built as a part of an OMS or as an addition to an existing OMS. If the facility's site has sufficient area, it may be more functional and economical to build a separate structure. The nature of the DS/GS shop operations require that all space be exclusive use. Therefore, the DS/GS shop will usually only share a central HVAC unit, a common wall, access/egress and toilet facilities with the OMS or OMS/AMSA. Support facilities for a DS/GS will be defined in the facilities program for a specific project and may include a small MEP area, outside storage, covered storage and an adjacent concrete apron pad for location and operation of mobile maintenance shop trucks and vans. The design criteria for standard areas such as the shop office, tool room, battery room, flammable storage and work bays are the same as those for the OMS. Special maintenance areas, such as tent repair, sheet metal shop, paint shop, welding shop, etc. , will be provided as required by the project documentation.

3-12. Equipment concentration site (ECS).

a. Function. An ECS is essentially a large MEP area for the storage of military vehicles and equipment which are to be used during annual and weekend training periods.

b. General design requirements. With few exceptions, an ECS is always located on an active or semi-active military installation and is collocated with an AMSA dedicated to maintaining the equipment stored at the ECS. Facilities which may be associated with an ECS, as provided for in the facilities program, are the parking hardstand, fuel dispensing system, loading ramp, wash platform, indoor equipment storage warehouse, combat vehicle arms vault , fencing, security lighting and an AMSA. Factors which affect the layout and design of an ECS are much the same as those for the MEP at an OMS or AMSA, with the following exceptions:

(1) Access/egress and circulation. Tracked combat vehicles are stored at an ECS and require access to the nearest tank trail on the military installation. In instances where asphalt paving or circulation areas are provided around a supporting AMSA, a concrete roadway or turning area may be required to provide access for combat vehicles to the AMSA shop bays. Due to

the larger size and heavier concentration of vehicles, the ECS traffic is very heavy during annual training periods. Traffic patterns, therefore, should be carefully laid out to avoid severe internal circulation conflicts at the fuel pumps, dispatch and washracks. Circulation lanes within the ECS area should be 24 feet wide.

(2) Fuel dispensing point. When authorized, the fuel point should be located adjacent to a primary circulation area and in proximity to the main entrance and other support facilities. The lanes and pump bases for the diesel and gas pumps should be concrete and should be drained so that all gas spills and water runoff are collected and emptied into a grease/ oil separator. The separator should also serve the AMSA work bays and vehicle washrack, whenever practicable.

(3) Indoor equipment storage warehouse. Since the primary function of this building is bulk storage of equipment, the structure must be non-combustible and as simple as possible. Pre-engineered metal buildings are acceptable. The interior layout should be open for flexibility and provide aisles large enough for material handling equipment. Depending on the type and the amount of equipment, a loading dock may be provided at one exit. A small portion of the building serves as a work area and should be heated to 68 degrees Fahrenheit in the winter. An office for the warehouseman should also be provided. Information concerning the types and amount of equipment to be stored and the types of material handling equipment to be operated within the warehouse will be provided by the Using Service.

Section IV. SPACE PLANNING

3-13. Functional relationships. Figures 3-76, 3-77 and 3-78 illustrate the functional relationships of a training center building, a drive-through AMSA and a drive-through AMSA/OMS respectively.

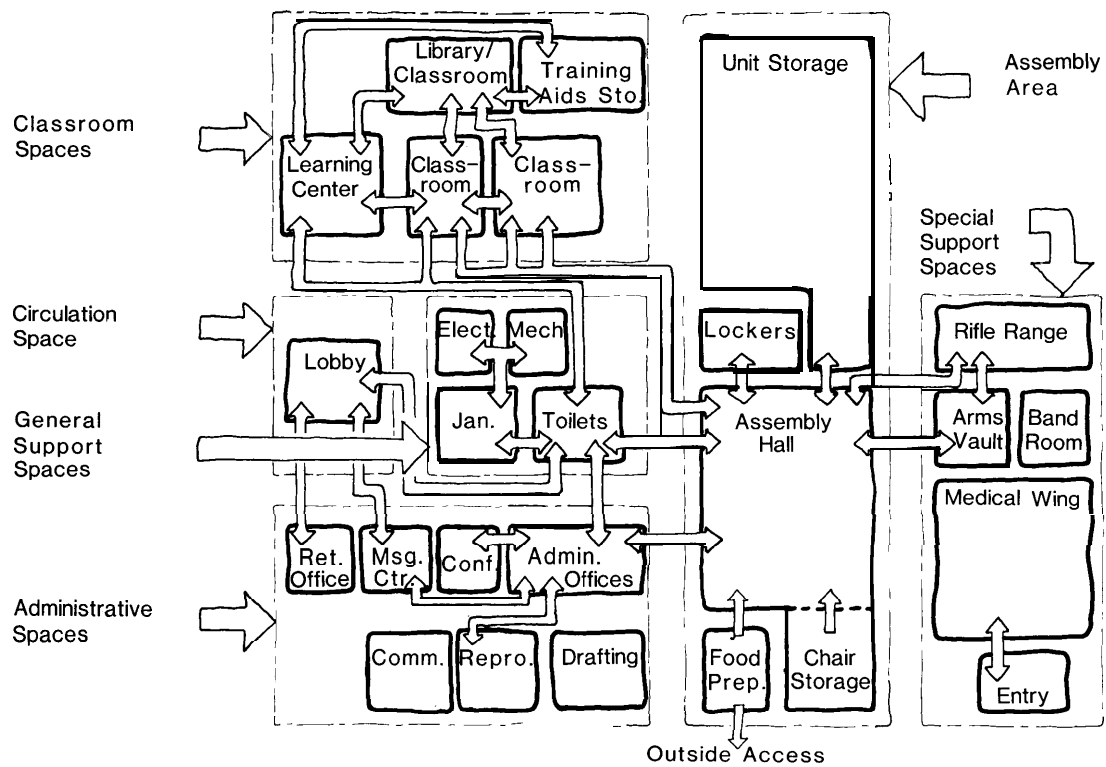


Figure 3-76. Training center building functional relationships.

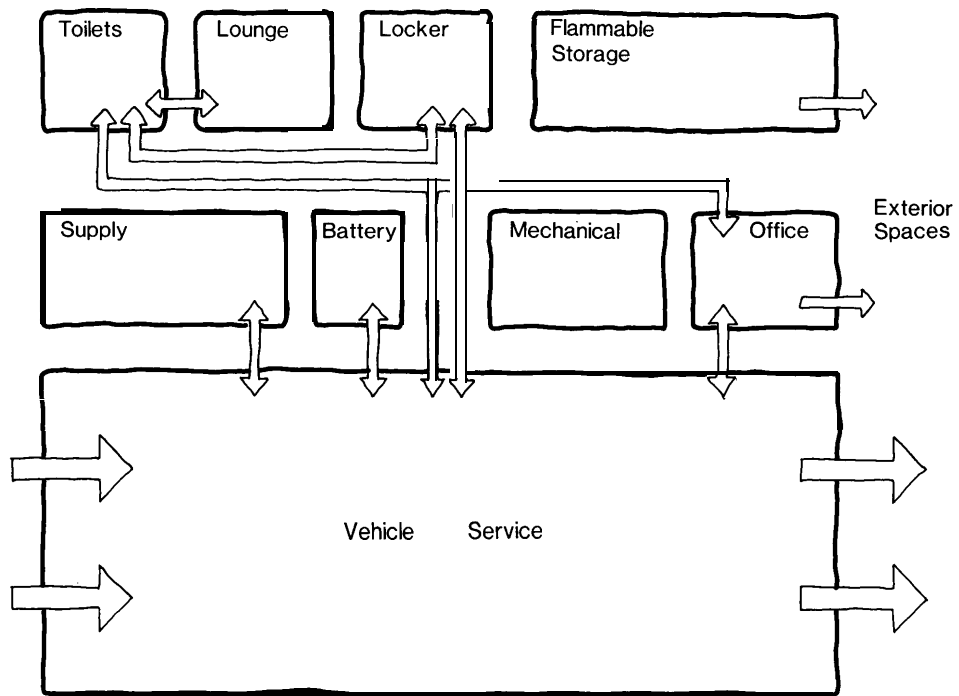


Figure 3-77. Drive-through AMSA functional relationships.

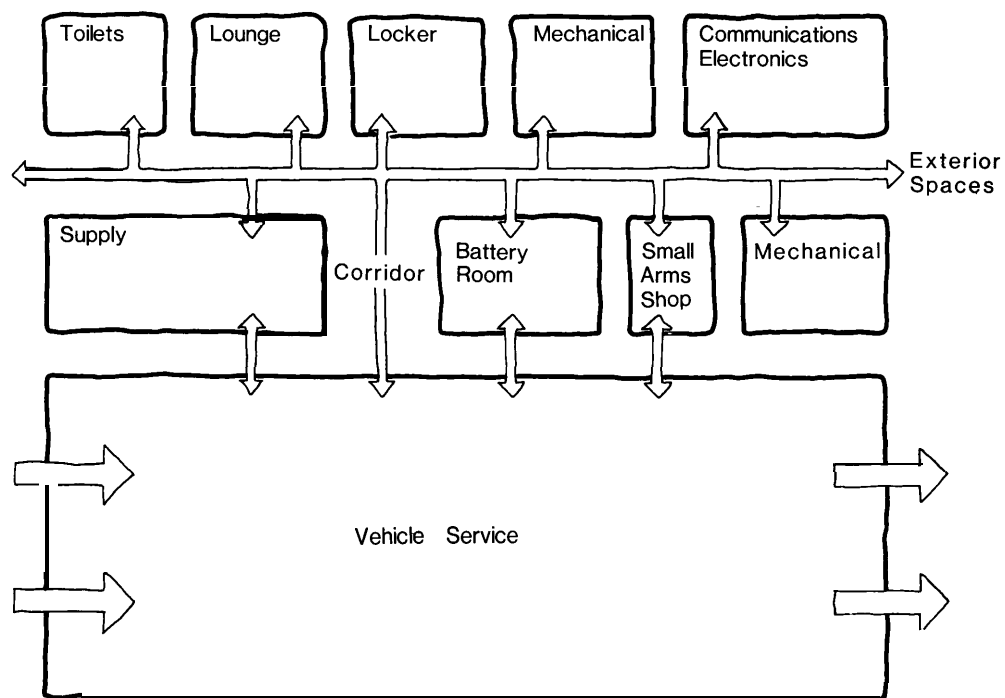


Figure 3-78. Drive-through AMSA/OMS functional relationships.